ASSESSING THE INFLUENCE OF GASTROINTESTINAL SYMPTOMS IN FEMALES WITH EMETOPHOBIA: THE MERE THOUGHT OF MY GUT MAKES ME WANT TO VOMIT

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ANUSCHA LIEBENBERG

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Declaration

I declare that

ASSESSING THE INFLUENCE OF GASTROINTESTINAL SYMPTOMS IN FEMALES WITH EMETOPHOBIA: THE MERE THOUGHT OF MY GUT MAKES ME WANT TO VOMIT

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SUMMARY

The study sought to explore the influence of gastrointestinal symptoms in female respondents with emetophobia disorder, panic disorder with agoraphobia and obsessive compulsive disorder. The research assessed a sample of sixty respondents which formed part of three groups which were recruited from clinical and online support groups. The age ranged from twenty to forty-five years. Non-probability quota sampling was employed. A non-experimental research design was implemented in order to make comparisons between these groups' association of gastrointestinal symptoms and the occurrence of possible vomiting. The differential research strategy determined whether a statistically significant difference existed. The groups were assessed on the Gastrointestinal Symptom Score (2005) and the Patient Assessment of Upper Gastrointestinal Symptom Severity Index (2004). The research aimed to determine whether empirical support exists for the Cognitive Behavioural Model of Emetophobia by Boschen (2007).

KEY TERMS

Emetophobia disorder; Panic disorder with agoraphobia; Obsessive compulsive disorder; Gastrointestinal symptoms; Vomiting; Nausea; Fear; Anxiety; Obsessions; Compulsions; Cognitive behavioural model.

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CHAPTER 1

INTRODUCTION

1.1 Overview and Terms

Emetophobia is a disorder with a low prevalence rate in the population and the primary symptom is a fear of vomiting (Davidson, Boyle & Lauchlan, 2008). The American Psychiatric Association (2013) classifies emetophobia disorder as a specific phobia (the other type) feature of this phobia is the fear of a phobic stimulus. Exposure to that stimulus provokes an anxiety response. Vomiting is the expulsion of gastric contents through the mouth (Glare, Dunwoodie, Clark, Ward, Yates, Ryan & Hardy, 2008). The act of vomiting is exceptionally unpleasant and it is involuntary if unrelated to bulimia nervosa. Bulimia nervosa is an eating disorder. The hallmark feature is consuming an abnormally large amount of food and then vomiting to compensate for the intake in order to avoid weight gain (Barlow & Durand, 2005).

When an individual with emetophobia disorder experiences nausea they habitually associate this experience with immediate vomiting, whereas a normal individual whom experience nausea would associate the experience with a small likelihood of vomiting. Nausea is a sensation in the back of the throat accompanied by an awareness of the urge to vomit (Fetzer, Hand, Bouchard, Smith & Jenkins, 2004). An alternative symptom associated with emetophobia disorder is anxiety, and anxiety is characterised by bodily symptoms of physical tension (Barlow & Durand, 2005). An individual with emetophobia may experience anxiety when they think about vomiting, when they are in a situation that they associate with vomiting or when they experience symptoms they relate to the possibility of vomiting. The experience of fear is defined as the immediate

reaction to danger (Barlow & Durand, 2005). An individual with emetophobia disorder may experience fear when they feel they are in danger of possible vomiting or when they find themselves in a situation where vomiting may occur.

Gastrointestinal symptoms are particularly relevant in emetophobia disorder as some individuals are superlatively cognisant of these symptoms. Gastrointestinal symptoms may be described as bloating, nausea, abdominal cramps, vomiting, heartburn, early satiety, retrosternal discomfort, sickness, upper abdominal pain and a loss of appetite (Adam, Liebregts, Saadat-Gilani, Vinson & Holtmann, 2005). Many individuals with emetophobia disorder gauge their gastrointestinal symptoms since they are convinced that these symptoms are related to the possibility of vomiting (Boschen, 2007).

Emetophobia disorder typically develops in childhood and the onset is customarily associated with an event or a memory related to vomiting. It is a disabling condition which is characterised by a tendency to avoid a wide array of situations or activities which might increase the risk of vomiting (de Jongh, 2012). Situations and activities which are linked to emetophobia disorder include safety seeking and avoidance behaviour such as examining food expiration dates, refraining from the use of alcohol and illegal substances, desisting poultry and seafood and omitting to have children (Hunter & Anthony, 2009; Lipsitz, Fyer, Paterniti & Klein, 2001).

According to the current edition of the Diagnostic and Statistical Manual of Mental Disorders, to be diagnosed with emetophobia disorder an avoidance response is necessitated. This avoidance response should be exorbitantly distressing and this response has a significant impact on the person's life (American Psychiatric Association, 2013). Individuals with emetophobia altogether avoid situations, thoughts or triggers which they associate with vomiting and these differ from

individual to individual. Individuals with emetophobia share symptoms with twain panic disorder with agoraphobia and obsessive compulsive disorder (Boschen, 2007; de Jongh, 2012). To meet the criteria for panic disorder, individuals must experience an unexpected panic attack and develop substantial anxiety over the possibility of having another attack (Barlow & Durand, 2005). Agoraphobia is characterised by the avoidance of certain situations or enduring these situations with marked distress (Barlow & Durand, 2005). Individuals with emetophobia disorder share the avoidant behaviour of individuals with panic disorder with agoraphobia by avoiding situations which may cause nausea or situations in which vomiting may occur.

Obsessive compulsive disorder consists of obsessions and compulsions. Obsessions are intrusive thoughts the individual tries to resist while compulsions are the actions used to suppress an obsession (intrusive thoughts) (Barlow & Durand, 2005). Individuals with emetophobia disorder share symptoms with individuals with obsessive compulsive disorder by being overly concerned (obsessed) with the food they ingest and by constantly assessing the expiration dates on foods (compulsions) due to a concern that particular foods may lead to nausea and consequent vomiting (Veale & Lambrou, 2006). Individuals with emetophobia disorder are obsessed with vomiting and they are constantly aware of and they assess their gastrointestinal symptoms to assert whether these symptoms are active and may lead to nausea and consequential vomiting.

Boschen (2007) developed a cognitive behavioural model for emetophobia. He elaborated on the causes of emetophobia disorder, the factors which maintain emetophobia disorder and the treatment of emetophobia disorder. He insisted that the gastrointestinal symptoms stemming from emetophobia disorder are the core feature of this phobic disorder and he urged the need for the empirical validation of these symptoms in a research study which assesses individuals with emetophobia disorder in order to find support for the model.

For the purposes of this study it was predicted that the gastrointestinal symptoms individuals with emetophobia disorder experience will precipitate them to believe or think that immediate vomiting will occur. The current hypothesis stated that individuals with emetophobia will display a higher gastrointestinal symptom score between their experience of gastrointestinal symptoms and the possible occurrence of vomiting in females with emetophobia. This fear of vomiting experienced by individuals with emetophobia disorder is colossal, and it is beyond the logical reasoning of such an individual to control this fear. Thus, feeling nauseas is a subjective symptom and nausea can only be interpreted by the respondent. Therefore, self-report assessment instruments were the most effective method to assess the respondents' personal experience of their gastrointestinal symptoms; their subjective thoughts; the behaviours stemming from their disorder; their additional avoidance of triggers and their coping mechanisms.

The following section will provide information on the reasons as to why further research on emetophobia disorder and the gastrointestinal symptoms experienced by individuals with emetophobia disorder is necessitated, the question this study sought to answer and the aims of this research endeavour.

1.2 Background

The decision to research emetophobia has been largely motivated due to a number of stated gaps which exists in this specific area within the literature. The gaps pertain to emetophobia disorder, gastrointestinal symptoms and previous research relating to emetophobia disorder. The need has been expressed by numerous authors and what will follow are some of the gaps identified.

According to Kobori (2011) the specific phobia of vomiting is a greatly under researched area, while Davidson et al. (2008) highlight a clear gap in the literature regarding emetophobia disorder and its treatment and the need for research is emphasised. Another factor to consider is the treatment success of emetophobia disorder as is stated by de Jongh (2012, p. 13) "positive treatment effects in case of treating emetophobia disorder are limited to a very small number of case studies". Bouman and van Hout (2006) and Moran and O'Brien (2005) insist that the consequences on everyday life can vary from minimal to extreme, and despite the motivation of the individual to seek treatment, success stories are uncommon (cited in Davidson et al., 2008). Further, clinicians find it challenging to treat emetophobia disorder because of a high dropout rate or a poor response to treatment (Kobori, 2011).

Individuals with emetophobia disorder may be reluctant to take medication due to their fear that medication might cause nausea, as was found by Lipsitz et al. (2001). The study indicated that many respondents said they avoided medication due to their fear that these would make them nauseas. Thus, the treatment approach with regard to emetophobia disorder is extremely grim as individuals seem reasonably unwilling to ingest medication; therefore, an alternative treatment approach needs to be evaluated, reflected upon and applied.

An additional factor related to emetophobia disorder is interoceptive stimuli such as gastrointestinal symptoms and individuals with emetophobia disorder "has a tendency to assess and monitor interoceptive stimuli such as nausea" (de Jongh, 2012, p. 10). Hunter and Anthony (2009) found that the physical sensations accompanying feelings of panic were in fact signs of impeding vomiting and these were monitored carefully by individuals with emetophobia disorder. Hunter and Anthony (2009, p. 91) further insisted that "internal physical manifestations are important in understanding emetophobia disorder and its treatment and this is an important

consideration for future studies". Once again internal manifestations may be construed as gastrointestinal symptoms experienced by the individual. Moran and O'Brien (2005) asserted that success stories of patients with emetophobia disorder being cured or successfully rehabilitated are very infrequent.

Based on the aforementioned it may be inferred that emetophobia disorder is a greatly under researched disorder; there is a great need for appropriate treatment methods and one of the main triggers associated with vomiting in individuals with emetophobia disorder are their gastrointestinal symptoms.

Boschen (2007) reviewed literature such as case studies, academic books and emetophobia related publications. Boschen (2007) formulated a cognitive behavioural research agenda. This agenda reviewed previous treatment and research pertaining to emetophobia disorder and proposed a model and various treatment techniques which may be successful. Boschen (2007) speculated the need for a study to investigate the somatisation tendency (gastrointestinal symptoms) displayed by individuals with emetophobia disorder to support his proposed model (the cognitive behavioural model of emetophobia). Boschen (2007) specifically suggested that an oversensitivity to gastrointestinal symptoms displayed by individuals with emetophobia disorder requisite to be replicated to support his model. Also, Hunter and Anthony (2009) assessed a single individual with emetophobia disorder and uncovered that fears of vomiting are triggered by internal sensations which are related to gastrointestinal symptoms.

The gastrointestinal symptoms would seem highly appropriate to peruse as Boschen (2007) regard these symptoms as the key feature which distinguishes emetophobia disorder from other disorders. Moreover, all the relevant gaps which were stated was aimed to provide the

justification for further research pertaining to the treatment of emetophobia disorder and these gaps are related to gastrointestinal symptoms. Should the current research yield data showing that individuals with emetophobia disorder display a higher gastrointestinal symptom score, it may contribute positively to Boschen's (2007) cognitive behavioural model of emetophobia and possibly assist in the treatment of emetophobia disorder. This model proposed by Boschen states the features which maintain emetophobia; this model further stipulates the methods in which an individual develops emetophobia and how emetophobia is maintained. Thus, by implementing the guidelines set forth a practitioner might positively enhance the treatment outcome for an individual with emetophobia disorder.

This research included panic disorder with agoraphobia respondents and obsessive compulsive disorder respondents as control groups due to the fact that emetophobia disorder overlaps in the cognitive processes and behaviour of individuals with panic disorder with agoraphobia, such as selective attention and vigilance, which is evident in emetophobia disorder when such individuals display a selective attention for nausea and an ongoing vigilance for triggers which are related to vomiting. Besides, there is likewise a significant overlap in the phenomenology of emetophobia disorder with that of obsessive compulsive disorder which is evident in their fear of contamination (Davidson et al., 2008). This twain overlap was illustrated and is evident in additional publications (Boschen, 2007; Lipsitz et al., 2001; Veale & Lambrou, 2006).

Another motivation for including panic disorder with agoraphobia and obsessive compulsive disorder control groups was that in the study by Lipsitz et al. (2001) more than half of the sample reported they had a first degree relative whom had been diagnosed with a psychiatric disorder, especially, panic disorder and obsessive compulsive disorder. A first degree relative is a family member who shares approximately fifty percent of their genes with a particular individual in a

family. Additionally, by finding and presenting data displaying a significant difference between these three (3) groups may provide the components fitting specifically to emetophobia disorder which, in part, may be used to conceptualise emetophobia disorder with distinct symptoms apart from those shared by individuals with panic disorder with agoraphobia and obsessive compulsive disorder.

1.3 Problem Statement

Positive treatment effects in cases of treating emetophobia disorder are limited to a very small number of case studies and individuals are prodigally diagnosed with emetophobia disorder as primary diagnosis (Dattilio, 2003; de Jongh, 2012). There are no validated models for emetophobia disorder and its treatment, and there are "no treatment protocols and controlled trials for the treatment of vomit phobia" (Boschen, 2007; de Jongh, 2012; Hunter & Anthony, 2009; Kobori, 2011, p. 171; Veale & Lambrou, 2006). Furthermore, according to de Jongh (2012, p. 10) "knowledge on how emetophobia disorder should be treated is limited, partly because of the lack of any controlled trial on the relative efficacy of treatment strategies for this condition".

On the contrary, research on vomit phobia presently lacks a standardised instrument, and most studies use self-developed questionnaires. This poses a problem since it renders a more difficult comparison between studies (Kobori, 2011). There is a proposed model in need of support to be validated and for the model to be valid, the assumption that the stated factors are simultaneously present in emetophobia disorder individuals' fear of vomiting would have to be assessed empirically (Boschen, 2007). These factors are related to the somatisation tendency present in

emetophobia disorder, and they specifically entail the experience of gastrointestinal symptoms (Boschen, 2007).

Therefore, the influence of gastrointestinal symptoms was purposefully studied to find support for the somatisation tendency introduced in Boschen's (2007) cognitive behavioural model of emetophobia. This somatisation tendency (experiencing gastrointestinal symptoms) of individuals with emetophobia disorder is the one and only component of the cognitive behavioural model of emetophobia that is still in need of empirical support.

The research on emetophobia was carefully given due consideration and to date (2015) no publications have examined the gastrointestinal symptoms (the somatisation vulnerability) of individuals with emetophobia disorder. Boschen (2007) states that this somatisation tendency experienced by individuals with emetophobia disorder is the key feature of emetophobia disorder and this feature sets individuals apart from individuals with other disorders. Thus, emetophobia disorder was the focus of this research endeavour in the South African context and abroad (the United States of America and Great Britain), respectively furthering the South African research base and informing future endeavours.

1.4 Research Hypothesis

The current study explored the influence of gastrointestinal symptoms on the respondent's belief that immediate vomiting will occur. Specifically, the study questioned: does thinking about and experiencing gastrointestinal symptoms indicate the possibility of immediate vomiting in female respondents with emetophobia disorder? Therefore, the hypothesis stated that the respondents whom presented with emetophobia disorder will display a higher association between their

subjective experience of gastrointestinal symptoms and the possibility of vomiting in comparison to the control respondents.

1.5 Research Aims

The research aims to determine if:

- A higher association between the experience of gastrointestinal symptoms and the possibility of immediate vomiting in the subjective rating scores from the female respondents with emetophobia disorder.
- A higher association between the subjective experience of gastrointestinal symptoms and possible vomiting the female respondents. These two variables were assessed on two validated assessment instruments, namely, the Gastrointestinal Symptom Score (GIS) and the Patient Assessment of Upper Gastrointestinal Symptom Severity Index (PAGI-SYM) (Adam et al., 2005; Rentz, Kahrilas, Stanghellini, Tack, Talley, de la Loge, Trudeau, Dubois & Revicki, 2004).
- A higher association exists between a somatisation tendency and the subjective belief that immediate vomiting would occur such an association may provide partial support for the cognitive behavioural treatment model of emetophobia introduced and pioneered by Boschen (2007).

1.6 Chapter Contents

The first chapter provided an introduction to the research which was conducted, the background motivation for research, the definition of the key terms and an elaboration of the features present

in emetophobia disorder, in panic disorder with agoraphobia and in obsessive compulsive disorder. The motivation for future research was emphasised along with the aims of the current research. In chapter two previous literature related to emetophobia disorder and to gastrointestinal symptoms were deliberated on. Chapter three provides academic material which are related to the research methodology, specifically, the theoretical frameworks and the underlying paradigms which are implicated in emetophobia disorder along with the theories and the models illuminating emetophobia disorder and its connotations.

Thereafter, in chapter four, a discussion of the research design, the sampling method, the sample population and sample characteristics, the assessment instruments (including their standardisation and development, their reliability and validity and the items included in the instruments), the procedure of data acquisition and the techniques of data analysis will be considered. The role of the researcher was pondered and the ethical considerations were highlighted as well.

In chapter five the results of the study will be displayed and discussed, and in chapter six; a short discussion of emetophobia disorder, the current research and the most relevant preceding research related to emetophobia disorder will be highlighted. This will be followed by the strengths and the weaknesses of the current research. Thereafter; the results will be considered, as well as, the conclusions reached in the current research and possible recommendations for future research will be designated.

1.7 Summary

In the aforementioned chapter the disorder classified as emetophobia disorder, its related terms and the associated features were elaborated on. The impediments associated with assessing and treating emetophobia disorder, the motivation for conducting research related to emetophobia disorder and the individuals' experience of gastrointestinal symptoms was likewise expounded upon. The research question was presented as well as the research aims. The following chapter will provide an in-depth discussion of previous literature on emetophobia disorder and gastrointestinal symptoms.

CHAPTER 2

LITERATURE REVIEW

2.1 Overview

The basis of the literature survey constituted an investigation and a clarification of previous research relating to emetophobia and the somatisation tendency (gastrointestinal symptoms) experienced by individuals with emetophobia disorder. The literature survey will also present an overview of the gastrointestinal symptom score (GIS) and the patient assessment of upper gastrointestinal symptom severity index (PAGI-SYM) (Adam et al., 2005; Rentz et al., 2004). Each study will be elaborated upon and information will be provided on the findings, the sample and the assessment instruments.

While reviewing literature the focus was narrowed to the most recent articles and the most relevant findings. The researcher placed the necessary emphasis on the information pertaining to

this area of research and the publications which were presented focused on the treatment and on the explanation of emetophobia disorder and its related features.

2.2 Emetophobia and Gastrointestinal Symptoms

2.2.1 Assessment inventory for the Specific Phobia of Vomiting

The *Specific Phobia of Vomiting Inventory* (SPOVI) was developed to assist in the treatment and in the outcome measurement of emetophobia (Veale, Ellison, Boschen, Costa, Whelan, Muccio & Henry, 2013). SPOVI (2013) is a self-report inventory which assesses the cognitive processes and the behaviours which maintains the symptoms of emetophobia. The authors validated the SPOVI (2013) by utilising it in conjunction with several other measures namely the *Disgust Scale Revised* (DS-R) by Olatunji, Williams, Tolin, Abramowitz, Sawchuk and Lohr (2007); *the Obsessive Compulsive Inventory (OCI)* by Foa, Kozak, Salkovskis, Coles and Amir (1998); *Health Anxiety Inventory* (HAI) by Salkovskis, Rimes, Warwick and Clark (2002); *the emetophobia questionnaire* (EmetQ-13) by Reddell (2006); *the PHQ-9 Depression Severity* by Kroenke and Spitzer (2002); *Generalised Anxiety Disorder assessment* (GAD-7) by Spitzer, Kroenke, Williams and Löwe (2006) and *the Work and Social Adjustment Scale* by Mundt, Marks, Shear and Greist (2002).

Veale et al. (2013) developed the specific phobia of vomiting inventory (SPOVI) for emetophobia disorder due to the fact that the assessment options are extremely limited for the evaluation of treatment outcomes for emetophobia disorder. The SPOVI (2013) is a self-report measure and focuses specifically on the thoughts of individuals with emetophobia and on the triggers which the individuals attempt to avoid. The scale of the SPOVI (2013) was created in

such a way as to assist the clinician to identify the most frequent cognitive processes and the behaviours which maintain the symptoms of emetophobia disorder and these should be targeted in therapy. The authors aimed to develop the scale in order for it to be free, brief and suitable for the assessment of symptom change over the course of treatment. The sample implicated in the development of the SPOVI (2013) consisted of an emetophobia group and a community group and respondents from both sexes were recruited.

The data afforded by Veale et al. (2013) concluded the following: the analysis of the SPOVI's (2013) results in clinical and normative samples established the inventory's reliability, validity and factor structure. The reliability assessment criteria were internal consistency and test-retest reliability. The SPOVI (2013) demonstrated good internal consistency and adequate temporal stability after one (1) week of a test and a re-test period. The evidence for validity was drawn from correlations between the SPOVI (2013) and another measure of emetophobia disorder; from emetophobia disorder related constructs and from sensitivity to the effects of treatment on symptom change over time. The interpretation of the aforementioned information implicated that the total SPOVI (2013) scores were significantly higher in individuals with emetophobia disorder when compared to a non-clinical normative sample.

The most noteworthy finding suggested that individuals treated for emetophobia showed a significant reduction in their SPOVI (2013) scores over the course of their intervention. A further noteworthy point that supported the validity of the SPOVI (2013) was evident when comparisons on a range of clinical variables were performed between individuals with emetophobia disorder recruited from the internet and individuals with emetophobia disorder recruited from a number of support groups proceeding from clinical settings. The two groups' data did not differ on the total SPOVI (2013) score.

The overall findings from the study by Veale et al. (2013) indicated that the evaluated properties of a novel self-report measure of vomiting to be accurate and consistent. However, the study by Veale et al. (2013) failed to develop a self-report question assessing the somatisation tendency experienced by individuals with emetophobia (Boschen, 2007). Thus, the current research utilised self-report measures with an emphasis on the somatisation tendency (gastrointestinal symptoms) individuals experience in the maintenance of emetophobia disorder and in the continuous reinforcement of this disorder (Boschen, 2007; Hunter & Anthony, 2009; van Overveld, de Jong, Peters, Wiljo, van Hout & Bouman, 2008).

Lastly, this study represented the first initial psychometric evaluation of the SPOVI (2013) and a replication of the results is pertinent to achieve. The results obtained from the current research might partially provide useful empirical data to test the cognitive behavioural model of emetophobia (Boschen, 2007). Therefore, future research may combine the empirically validated model of Boschen (2007) and the psychometrically validated SPOVI (2013) along with other methods such as cognitive behavioural therapy, specifically, interoceptive and situational exposure to treat and alter cognitions and the behaviour of individuals with emetophobia in order to alleviate these and allow such individuals to ultimately live a normal life (Hunter & Anthony, 2009).

2.2.2 Eye Movement Desensitisation and Reprocessing (EMDR)

In the study by de Jongh (2012), a female with emetophobia disorder was successfully treated in a single case study by administrating the eye movement desensitisation and reprocessing (EMDR) approach in a series of treatment sessions and the therapist included a three year follow-up. This

two method model was implemented to access crucial memories related to the origins and to the maintenance of the symptoms of emetophobia.

The respondent completed the Mini International Neuropsychiatric Interview, version 5.0.0 (Sheehan et al., 1998, cited in de Jongh, 2012). The Mini International Neuropsychiatric Interview allows for a differential diagnosis to be made and assists to evaluate for the presence of any coexisting disorders. The findings showed that the respondent only presented with emetophobia disorder. The second measure the respondent completed was the Dutch version of the Symptom Check List-90 Revised (SCL-90-R) by Hopkins (1977) (cited in de Jongh, 2012) which provides an indication of psychological dysfunction and the SCL-90-R includes a somatisation dimension consisting of twelve (12) items. The female's score fell into the very high range category of the measurement instrument and she re-experienced bodily sensations to be just as intrusive and as debilitating as thoughts about previous memories and past experiences she associated with vomiting (de Jongh, 2012).

De Jongh (2012) purposefully explored the clinical usefulness of the EMDR approach to treat emetophobia disorder. The EMDR is an eight (8) phase psychotherapeutic approach and it is aimed at resolving symptoms resulting from unprocessed life events. The EMDR approach is capable of resolving disturbing memories, including the memories which occurred during the onset of a phobia and are considered to be causal in the etiology of the phobia (de Jongh, 2012). The EMDR places emphasis on a traumatic memory which the respondent should recall and then concentrate on a few aspects of that memory. The respondent should then place focus on the accompanying emotions related to that memory and the bodily sensations they experience. The individual may attempt to focus on a single aspect of this memory, the most distressing aspect, and come to the realisation that it was not traumatic. The EMDR approach is carried out with

headphones which are connected to a CD-player with alternating tones. A core feature of the EMDR approach is the performance of eye movements. The performance of eye movements entail that the therapist should move his or her fingers and the respondent should track the movements whilst focusing on the traumatic memory. Thereafter, access to the emotional and the somatic aspects of the memory occur. The respondent has to report emotional, cognitive, somatic or imagistic experiences on a scale from zero (0) to ten (10). The respondent should make an active attempt to ensure that the experience does not deprive them of their individuality, their character and their self-image. However, the aforementioned might be particularly distressing as the individual encoded a memory to associate that particular experience with distress. Should the respondent with emetophobia have the ability to form a new association to accompany their original encoded memory and thereafter successfully replace that distressing memory they may possibly embark to be emancipated from their phobia. Therefore, the EMDR approach is capable of resolving disturbing memories of a wide variety of events by targeting cognitive, emotional and behavioural changes in the individual when they place focus on a traumatic memory related to the development and responsible for the maintenance of emetophobia disorder.

The aforementioned case study is extremely valuable in the current research for the reason that the gastrointestinal symptoms experienced by individuals were the main focus point. In emetophobia disorder this traumatic memory may be related to their gastrointestinal symptoms. The case study illustrated how exposure to distressing situations can lay down the groundwork for phobia conditions like emetophobia disorder. Lipsitz et al. (2001) further confirmed that when one is confronted with situations which are similar to a previous event, those memories and perhaps novel memories associated with nausea, are automatically activated and re-experienced

as if they are about to be repeated. Thus, the information in the publication by de Jongh (2012) is valuable as the focus was on an individual's cognitions and how these can be altered to change thoughts and consequently influence behaviour to change as well.

The technique employed by de Jongh (2012) would be of much greater value to the field of psychology if it was used in combination with a survey and a larger sample and the focus was placed on treatment by means of altering subjective thoughts and cognitions with the aim to adjust future behaviour. Unfortunately a single female was successfully treated, however, the findings from de Jongh's (2012) research may be beneficial in future research endeavours. The EMDR is a very useful approach due to the fact that it combines traumatic memories with images, emotions and bodily symptoms. The EMDR approach further attempted to prepare the respondent for future confrontations with the phobic stimulus.

2.2.3 Cognitive Behavioural Therapy

Kobori (2011) successfully treated a female with emetophobia; he implemented cognitive behavioural therapy and a self-report measure. He further included treatment strategies proposed by cognitive behavioural models of emetophobia (Boschen, 2007; Veale et al., 2013). The design which was implemented was a single case report study. The therapy involved ninety (90) minutes of individual therapy twice a week and follow-up sessions were offered one (1), three (3) and six (6) months after the individual therapy was concluded. The case formulation was collaboratively developed and based on the female's past experiences, such as typical triggers which led to bodily changes and stomach discomfort.

The behavioural experiments were purposefully employed to break down and terminate safety seeking behaviour and their associated triggers in order to avoid repetition of the process which

maintained emetophobia. Kobori (2011) first identified the situations which made the respondent anxious, thereafter the respondent had to eradicate her safety seeking behaviours. Attention training was employed for the respondent to shift attention from the areas of internal cues and external perception. During attention training the female was asked to pay more attention to her body than usual, thereafter she was asked to pay less attention. The realisation the therapist attempted to enforce was that an increased self-attention to subjective bodily symptoms made them worse and this will affect subsequent thoughts and mood. The respondent realised that self-focused attention intensified her anxiety and her bodily sensations. The sessions were audiotaped and the client was advised to listen to these recordings at home. The situations which made the respondent anxious were identified first. An important trigger which was identified was that the respondent experienced bodily changes after ingesting food, namely stomach discomfort which may be referred to as a somatisation tendency. The respondent additionally completed the *Beck Depression Inventory* (BDI) (Beck, Ward, Mendehlsohn & Erbaugh, 1961, cited in Kobori, 2011) and the *Beck Anxiety Inventory* (BAI) (Beck, Epstein, Brown & Steer, 1988, cited in Kobori, 2011). There was a decrease in the pre- and post test scores from these instruments, as well as, a decrease in the scores on the developed self-report measure which assessed a pre-occupation with nausea and safety seeking behaviour.

One of the main findings of this study was the somatisation tendency which was experienced by the respondent with emetophobia and that the respondent exhibited selective attention to this somatisation tendency and to the inner workings of her body, she communicated her distress by stating: “I’m more likely to vomit when I’m full” (Kobori, 2011, p. 176). Kobori (2011, p. 174) further found that the thought of possible vomiting was mainly associated with these bodily sensations such as “my stomach is going to feel heavy” and “I’m going to be nauseas”.

Therefore, the thought of possible nausea increased her anxiety and reinforced her bodily changes. The results proved that the thought of possible vomiting was contributed mainly to the inner workings of her body (the somatisation tendency) especially her stomach feeling heavy.

The overall findings showed a disconfirmation in the respondent's beliefs and less safety seeking behaviour with the assistance of attention focusing and the modification thereof. Cognitive behavioural therapy may be a possible treatment method to assist in treating emetophobia disorder because the research by Kobori (2011) was successful, however, future studies may combine a trauma-based approach and cognitive behavioural therapy. The researcher may administer cognitive behavioural therapy by targeting the feared situations. A trauma-based approach should target the memory or the memories which are associated with emetophobia.

The respondent self-volunteered for the study by Kobori (2011) and provided the researcher with the opportunity to provide the necessary treatment to a respondent in need. Therefore, the data set forth in the research by Kobori (2011) was successful; however, the data pertaining to a single female. Future studies may attempt to replicate the findings by utilising a much larger sample of respondents with emetophobia disorder and additionally incorporate other cognitive behavioural therapy techniques such as the EMDR approach which was utilised by de Jongh (2012). De Jongh (2012) successfully treated a respondent with emetophobia. A combination of these two success treatment strategies may prove to be more effective long term and in a larger sample. Thus, the working memory account of the EMDR approach is useful as the strength of the memories (responsible for the development of emetophobia) are weakened (de Jongh, 2012). The accompanying result of weakening these memories is that the respondent should feel less emotionally charged, the respondents fear decreases and the avoidance behaviour disappears.

Cognitive reformulations of anxiety disorders are extremely beneficial as cognitions are very innate in maintaining a phobia (Boschen, 2007).

2.2.4 Emetophobia Symptoms Survey

Lipsitz et al. (2001) conducted an internet survey on emetophobia. The survey consisted of open-ended questions which were distributed anonymously via electronic mail. A sample of fifty (50) women and six (6) men was obtained. The use of open-ended questions allowed the respondents to provide information with subjective relevance.

Lipsitz et al. (2001) found that the duration and the persistence of symptoms to be chronic and the triggers which are associated with emetophobia to be both internal (bodily sensations) and external (seeing something in the environment) in nature. One of the most striking findings was related to pregnancy which showed that forty-four percent (44%) of the females delayed becoming pregnant and twelve percent (12%) indicated that emetophobia disorder made their pregnancies distressing. Furthermore, many respondents avoided treatment, would not communicate their phobia with a therapist and would not attempt an exposure-based treatment.

An important finding from this study was that a number of respondents' initial onset of emetophobia occurred after a stomach virus and many reported that they benefited from the personal use of gastrointestinal medicines. Another noteworthy finding was that one third of the respondents reported that they experienced a serious medical problem in adulthood. Gastrointestinal disorders were related to these medical problems. Unfortunately, the open-ended questions utilised in the survey failed to cover the somatisation concerns connected to the precipitation and to the maintenance of the symptoms in emetophobia. The current research

imputed a great emphasis on the somatisation concern tendency and the symptoms which are experienced by individuals with emetophobia due to this tendency.

Lipsitz et al. (2001) contributed tremendously as the authors were pioneers in laying the groundwork to describe the etiology of the symptoms present in emetophobia. The authors revealed the fear of pregnancy factor in females with emetophobia and as a result of their internet based research the authors provided a new setting for other researchers from which to obtain their data.

2.2.5 Locus of Control

In the study by Davidson et al. (2008) the respondents was assessed on the *Health Locus of Control Scale* (Wallston, Wallston, Kaplan & Maides, 1976). The sample consisted of an emetophobia group (51 female respondents), a phobia control group (48 female respondents) and a non-phobia control group (50 female respondents). The females were assessed on a battery of instruments namely the *Rotter's Locus of Control Scale* (Rotter, 1966; cited in Davidson et al., 2008) and the *Health Locus of Control Scale* (Wallston et al., 1976; cited in Davidson et al., 2008).

A between-subjects design was utilised and the data which was compared was based on the internal locus of control scale (1996) and on the health locus of control scale (1976). An important finding from the research showed that the emetophobia respondents displayed a significantly higher internal locus of control scale score related to health issues along with a greater propensity to become anxious regarding their health-related issues (Davidson et al., 2008).

This display of a greater internal locus of control is contrary to most anxiety disorders which are mostly associated with an elevated external locus of control (Ganellen & Blaney, 1984; Molinari

& Khann, 1981). Therefore, an internal locus of control may be related to gastrointestinal symptoms as individuals may attempt to control their own somatic symptoms and may experience great distress if they are unable to do so. The current research focused specifically on the somatic symptoms namely gastrointestinal symptoms. Thus, when individuals with emetophobia experience biologically normal gastrointestinal symptoms they tend to associate these symptoms with the possibility of vomiting due to their phobia. The association is maintained and repeated through the maintenance of their encoded cognitions, their formed beliefs and their learnt behaviour.

Another noteworthy suggestion by Davidson et al. (2008) was that the main symptoms of emetophobia may arise from the fact that the individual seeks control. Therefore, since individuals fear losing control they instead strive excessively to retain such control and they attempt to exert control over a physical event which is naturally very difficult to accomplish. Future research may attempt to determine the mechanisms employed by individuals with emetophobia to gain such control. The researcher may consequently record the maintenance and the safety confirmations, as well as, the safety avoidance which are implemented by individuals in order not to lose control. The researcher may additionally assess whether this sense of control or loss of control reduces anxiety and whether the need for control cycle comes to a halt or whether it may add additional anxiety and the need for control cycle amplifies and repetition occurs. A possible schematic for the aforementioned research is presented in figure 2.1 (page 36) below.

Another important finding was that the emetophobia group had a greater internal locus of control score related to general issues as well. Thus, such individuals will attempt to control general events in their life, along with the factors or the events which are related to their health. In the

current research the main focus was on the gastrointestinal symptoms experienced by individuals with emetophobia. In future studies an attempt may be made to determine whether this internal locus of control is directly or indirectly linked to gastrointestinal symptoms. Davidson et al. (2008) included panic disorder with agoraphobia respondents and obsessive compulsive disorder respondents in their phobic control group. There is additionally a significant overlap in the cognitive processes and in the behaviours of individuals with panic disorder with agoraphobia and emetophobia disorder (Veale & Lambrou, 2006).

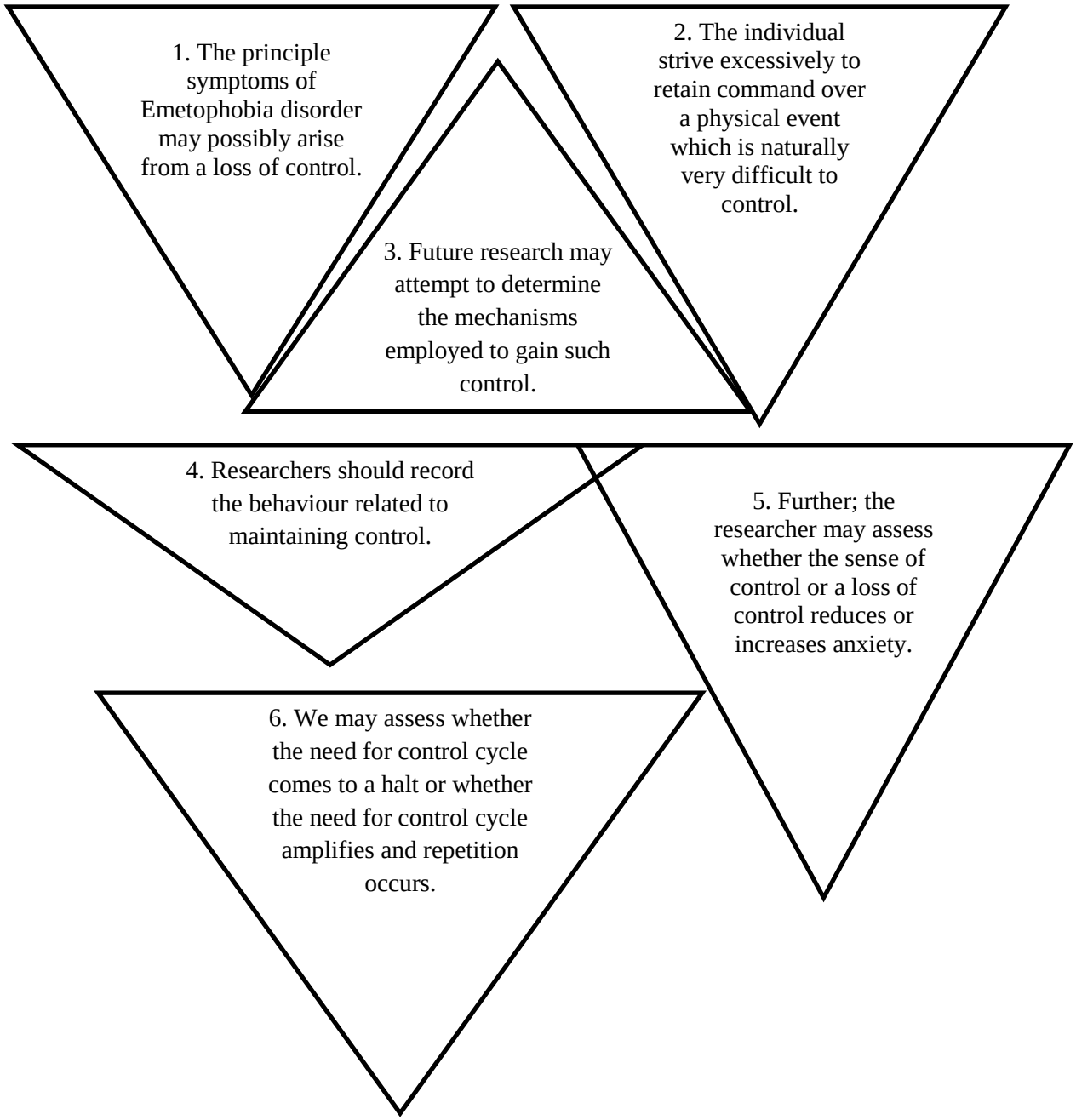


Figure 2.1 **The Control Cycle for Emetophobia Disorder.**

2.2.6 Subjective Control related to Emetophobia Disorder

Veale and Lambrou (2006) located a crucial factor in attempting to understand emetophobia disorder by directing their research towards control and the factors surrounding this control. Specifically, whether the respondents with emetophobia wanted to control their bodily processes or the general issues related to their life. Veale and Lambrou (2006) could have altered and modified their research by attempting to assess whether the respondents thought that their subjective effort of bodily- or general control will result in not vomiting. This would have assisted in attempting to uncover the subjective factors innate to each of the respondents.

Veale and Lambrou (2006) found a significant overlap in the phenomenology of obsessive compulsive disorder and emetophobia disorder. The current research included panic disorder with agoraphobia respondents as a baseline control group and obsessive compulsive disorder respondents as an additional baseline control group. Furthermore, the difference between the current research and an alternative research conducted by Davidson et al. (2008) is that in the research by Davidson et al. (2008) the panic disorder with agoraphobia respondents and the obsessive compulsive disorder respondents formed part of a single control group (the phobia controls) and in the current research the respondents formed part of two separate control groups. A noteworthy inclusion in the research by Davidson et al. (2008) was that the entire respondent population from the groups (emetophobia group, the phobic control group and the healthy control group) included Irish, American and British citizens. This adds value to the generalisation of the results and provides a database for universal research on emetophobia disorder.

It is evident in the publication by de Jongh (2012) when he successfully treated an individual with emetophobia by altering and changing her cognitions through cognitive behavioural therapy. Thus, the study by Veale and Lambrou (2006) may have greater value if it was combined with cognitive behavioural therapy methods. Alternatively the relationship between an internal locus of control and cognitions could have been studied and how the individual's thoughts might have contributed to a general sense of control or a sense of control over possible health issues.

Another area for future research may be to determine whether this need for control is additionally directed towards cognitions such research may be combined with the method of Solomon, Holmes and McCaul (1980, cited in Davidson et al., 2008) to determine whether an effortless ability is needed to control these thoughts and whether this control then decreases anxiety or whether this control is maintained by some repetitive activity which is performed by the individual or by certain beliefs about the environments in which control occur.

Solomon et al. (1980; cited in Davidson et al., 2008) found that individuals with emetophobia have a greater propensity to become anxious regarding health-related issues when compared to individuals without emetophobia, however, this level of anxiety permeated across to other aspect of general living. Solomon et al. (1980, cited in Davidson et al., 2008) investigated the relationship between a decrease in anxiety and control by delivering electric shocks to individuals. They found a decrease in anxiety only in the individuals for whom exerting control over the aversive event (shock) did not require too much effort. This decrease in anxiety was similar to those individuals who did not experience any electric shocks. Furthermore, they found that the respondents for whom control was difficult to exert had reported a level of anxiety which were similar to the level of anxiety experienced by those who could exert control over the same aversive event.

The conclusion was thus that control must be relatively easy to achieve before anxiety surrounding the abhorrent events can decrease and the ability to exercise control reduced physiological arousal (Solomon et al., 1980, cited in Davidson et al., 2008). However, during the actual exercising of control over an aversive event the respondents' physiological arousal was not reduced. This may be the case in emetophobia disorder when individuals attempt to control their gastrointestinal symptoms; the individual's anxiety may actually increase due to their constant monitoring and due to the attempts they made to attain control over their gastrointestinal symptoms. Therefore, as was presented in the research by Solomon et al. (1980, cited in Davidson et al., 2008) it would seem that in certain circumstances, exercising control in dangerous or unpleasant situations can increase physiological arousal in such a manner that it overrides any initial advantage gained in their ability to take charge of the situation. Based on the aforementioned, future research may attempt to create two groups (an easy to control group and a difficult to control group). The researcher should attempt to assess what the respondents has to do to attain this control and attempt to determine why the control is difficult or easy to attain.

2.2.7 Disgust Propensity and Disgust Sensitivity

In the research by van Overveld et al. (2008) the authors conducted a study via the internet based on disgust propensity and disgust sensitivity and its relation to emetophobia disorder. Disgust propensity may be defined as how quickly the individual experiences disgust. Disgust sensitivity may be defined as how negatively do the individual evaluate their disgust experience. The sample consisted of one hundred and thirty-three respondents in the emetophobia group and thirty-nine (39) respondents in the control group. The sample was assessed on a battery of measures namely the *Disgust Questionnaire (DQ)* (Rozin, Fallon & Mandell, 1984; cited in van

Overveld et al., 2008); *the Disgust Scale* (DS) (Haidt, McCauley & Rozin, 1994; cited in van Overveld et al., 2008); *the Disgust Propensity and Sensitivity Scale-Revised* (DPSS-R) (van Overveld, De Jong, Peters, Cavanagh & Davey, 2006; cited in van Overveld et al., 2008) and the *Emetophobia Questionnaire* (EQ) (Bouman & van Hout, in preparation; cited in van Overveld et al., 2008). Upon completing the measures the respondents were not aware of their group status (emetophobia group or control group) and this may have contributed to data which are not confounded. Thus, more genuine results might have been achieved as the respondents were not able to malinger in their feedback as they had to honestly provide their subjective opinion of their experience.

The most pertinent findings were provided by the data which was collected from *the Disgust Propensity and Sensitivity Scale-Revised* (DPSS-R) (van Overveld et al., 2006) and the *Emetophobia Questionnaire* (EQ) (Bouman & van Hout, in preparation). There were three hundred and forty-eight (348) respondents whom formed part of the study and there were one hundred and thirty-eight (138) respondents in the emetophobia group. On the DPSS-R the emetophobia group had to rate how often they experience specific bodily symptoms related to disgust and on the EQ the emetophobia group had to answer questions related to bodily sensations and vomiting. The overall data showed that the emetophobia disorder respondents demonstrated elevated levels of disgust sensitivity and added concerns about bodily symptoms related to possible vomiting. The emetophobia disorder group in other respects displayed a significant increase in emetophobia disorder related complaints such as worrying about vomiting. The most pertinent finding was that disgust sensitivity contributed indomitably to the perpetuation of emetophobia disorder when compared to the contribution of disgust propensity. This disgust might be defined as being nauseas and the act of vomiting may be regarded as

particularly disgusting for any individual (van Overveld et al., 2008). The disgust related to vomiting may be inherently related to emetophobia disorder. Therefore, there might be a causal link between disgust and the initial development of emetophobia. This study contributed positively as there were males whom formed part of the sample and the respondents were initially unaware of their group status (emetophobia group or control group). The emetophobia group respondents were self-diagnosed and this may have possibly accrued less statistically significant results. The current research therefore assessed emetophobia disorder respondents whom were diagnosed according to the DSM-V (American Psychological Association, 2013).

Future research may attempt to determine whether individuals are disgusted by their gastrointestinal symptoms or if they have an elevated level of disgust sensitivity with regard to their gastrointestinal symptoms. Furthermore, disgust may be related to the obsessive compulsive disorder feature which is presented in emetophobia disorder and might consequently influence the individual's cognitions. An important finding in the publication by van Overveld et al. (2008) was that the emetophobia disorder respondents related specific bodily symptoms to disgust and this disgust was linked to the possibility of vomiting. In conclusion, the research by van Overveld et al. (2008) illuminated valuable future research prospects and the overall results obtained determined that individuals with emetophobia disorder displayed elevated levels of both disgust propensity and disgust sensitivity.

2.2.8 Interoceptive and Situational Exposure

In the study by Hunter and Anthony (2009) a female respondent with emetophobia disorder was successfully treated. In this single case study design and the respondent was treated by experiencing the sensations which are associated with vomiting, as well as, the re-experiencing

of situations which triggered the respondents' fear of vomiting and not necessarily the act of vomiting itself. The respondent received nine (9) weeks of cognitive behavioural therapy (CBT) with an emphasis on the graduated exposure to her feared situations and a special focus was placed on challenging her anxiety provoking thoughts. The methods included: education about the origins of anxiety; the implications of physical symptoms and the use of symptom induction exercises. The female was assessed on the preceding version of the DSM-V (2013) namely the DSM-IV-TR (2000) prior to treatment and thereafter she completed a battery of self-report measures, namely, the *Depression Anxiety stress scales* (DASS) (Lovibond & Lovibond, 1995; cited in Hunter & Anthony, 2009); *The Illness Intrusiveness Rating Scale* (IIRS) (Devins et al., 1983; cited in Hunter & Anthony, 2009) and *the Anxiety Sensitivity Index (ASI)* (Reiss, Peterson, Gursky & McNally, 1986; cited in Hunter & Anthony, 2009).

In the first (1st) session the respondent was shown a model of anxiety which emphasised the interplay of cognitive, physical and behavioural factors and the goals of the treatment approach were identified. During the second (2nd) session the purpose of exposure based therapies was explained in conjunction with reviewing the strategies which ensure the success of graduated exposure. The respondent developed a hierarchy of situations which she feared and these were related to vomiting. The feared situations in the respondent's hierarchy were that she had to drink a full can of soda for homework and that she had to ingest leftovers which were two days old. The third (3rd) treatment session included a rationale for treatment and this rationale was reviewed. The respondent's husband was invited to assist in completing the daily exposure-based exercises. In the fourth (4th) session the role of the respondents' thoughts in maintaining anxiety was discussed together with an information pamphlet explaining the physical symptoms of anxiety. The respondent experienced a turning point in therapy because she comprehended

that many of her feared symptoms were guilelessly her body's response to fear and not a sign of possible vomiting. Thereafter, there were noticeable changes in the respondent's symptoms, her affect and her appearance. The respondent made significant progress in confronting her anxiety in several situations ranging from severe, mild to none. In sessions five (5) to seven (7) interoceptive exposure was introduced and her panic symptoms were challenged. The respondent progressed to understand that her symptoms are naturally occurring reactions from her body towards existing external stimuli within the environment. The respondent communicated to the therapist that these symptoms triggered severe anxiety. Thus, the therapist persuaded the respondent to practice these interoceptive exposure techniques regularly in order to develop a tolerance for these symptoms. In sessions eight (8) to nine (9) the respondent was able to successfully incorporate the aforementioned strategies into her daily life. Furthermore, all of the symptoms' scores on her hierarchy of feared situations were reduced. Lastly, the possibility of relapse was discussed and the strategies to prevent possible relapse were conferred.

The findings on all three (3) of the assessment instruments implemented in the study by Hunter and Anthony (2009) conveyed results which were deemed to be statistically significant once the comparisons between the pre- and the post treatments were made. The evidence presented in the study by Hunter and Anthony (2009) supported the significance of internal sensations, namely; gastrointestinal symptoms and how these symptoms are related to the body's natural fear response. It was discovered that the female respondent associated her first ever incident of vomiting (the onset of emetophobia disorder) with uncomfortable gastrointestinal symptoms. The female respondent reduced her food intake to such an extent that she progressed to a stage where she weighed a scant ninety (90) pounds due to her fear of ingesting food and the possible gastrointestinal symptoms which may consequently occur.

According to Boschen (2007) a predisposing factor to develop emetophobia disorder is a somatisation vulnerability. This somatisation vulnerability is defined as a tendency to express anxiety through somatic symptoms. In the study by Hunter and Anthony (2009) the female was never comforted after her initial experience of vomiting in public when this somatisation vulnerability was triggered and the female developed emetophobia. Another important finding was that the female associated her pre-menstrual bloating with uncomfortable gastrointestinal symptoms and consequently, these gastrointestinal symptoms were associated with vomiting.

The current research's emphasis is placed on gastrointestinal symptoms and bloating is assessed by the assessment instruments, specifically; the gastrointestinal symptom score (GIS) and the patients assessment of upper gastrointestinal symptom severity index (PAGI-SYM) (Adam et al., 2005; Rentz et al., 2004). Rachman (1976; 1977 cited in Hunter & Anthony, 2009) posits that there are pathways to develop specific fears namely traumatic conditioning; a genetic or physiological vulnerability and the lack of a previous non-fearful experience with a particular object or situation.

Hunter and Anthony (2009) further added that phobias are maintained in three ways, namely, avoidance behaviour which prevents the correction of anxious misconceptions about the feared situation; the avoidance or escape that brings relief and reinforces avoidance behaviour; and an over reliance on safety signals such as objects or people to assist them to cope with the feared situation. An individual with emetophobia may possibly always ensure and seek a friend or a family member to accompany them should they have no other choice as to participate, visit or endure a situation they uncontrollably associate with the possibility of vomiting, or a situation that they associate with the possibility of experiencing subjective gastrointestinal symptoms.

Interoceptive exposure involves the induction of physiological symptoms which mimic anxiety as was presented in the study by Kahana and Feeny (cited in Hunter & Anthony, 2009). A nine (9) year old child with emetophobia disorder was cured by making use of this method. The interoceptive exposure was conducted in a series of twenty-three (23) sessions within which exposure to interoceptive therapy was put into practice. The main conclusions which were realised were that internal sensations were important in the experience of the anxiety implicated in emetophobia disorder. The aforementioned findings overlap with the finding set forth by Lipsitz et al. (2001). Therefore, the experienced internal sensations may be a distinguishing feature of the disorder of emetophobia. This conclusion overlaps with the findings presented and the conclusions gained by Boschen (2007). Therefore, it might be adjudged that it would be of great value to create a study which incorporate the assessment of gastrointestinal symptoms and then combine the assessment of these gastrointestinal symptoms with interoceptive exposure. The aforementioned may be attained by inducing gastrointestinal symptoms and combining this inducement with an additional assessment of the respondents on the SPOVI (2013) post assessment. Therefore, the researcher may assess the success of interoceptive exposure by comparing the data on the SPOVI (2013) before applying interoceptive exposure and after interoceptive exposure was applied. A further step may be to incorporate cognitive restructuring techniques as was done by Kobori (2011) whom found that internal sensations were highly implicated in emetophobia disorder and the respondent was cured by means of graduated exposure to the feared stimuli.

2.2.9 Subjective Behaviours related to Emetophobia Disorder

Veale and Lambrou (2006) conducted an exploratory study on emetophobia to learn more about the safety seeking behaviour, the avoidance behaviour and the factors maintaining the specific fear of vomiting which are experienced by respondents with emetophobia disorder. The main findings in the research set forth by Veale and Lambrou (2006) may be summarised as follows: firstly, individuals with emetophobia disorder misinterpret the sensations of nausea. Secondly, they experience an inflated sense of responsibility to control these symptoms or otherwise they adapt their behaviour accordingly in order to avoid these symptoms or the possibility of these symptoms' occurrence. Thirdly, an attentional bias exists and an increased vigilance on the sensations of nausea might be projected. Lastly, the safety seeking- and avoidance behaviour implicated in emetophobia disorder were presented.

The sample which provided the data consisted of two hundred and nine respondents and these respondents were interred in three (3) groups: vomit phobia group, the panic disorder group and the non-clinical control group. The number of respondents forming part of each group was unequal, thus, the data which was proffered may possibly have had a confounding influence on the validity of the results obtained. A supplemental attempt to ensure significant results may have been attained if the data which was utilised to draw conclusions from were equal across the three (3) groups. Therefore, hypothetically, we may assume the authors only assessed twenty (20) questionnaires from each group and the only data which was set forth were the data pertaining from the twenty (20) questionnaires which were randomly selected (Veale & Lambrou, 2006).

The respondents were recruited under the aegis of various sources; however, the non-clinical controls were either relatives or friends of the emetophobia group or the panic group (Veale & Lambrou, 2006). This might have been problematic as they might have learnt some of the

behaviours associated with and implicated in emetophobia disorder and may have caused the control group to purposefully select an answer on the questionnaire which was the opposite of their true response and this selection might have been based on their knowledge about their friend or their family members' behaviours or symptoms whom present with emetophobia disorder. Furthermore, the three (3) groups which were assessed in the research by Veale and Lambrou (2006) were all assessed on different versions of the vomiting questionnaire which was specifically designed for each group namely vomit questionnaire for healthy controls, the vomit questionnaire for panic disorder and the vomit questionnaire for vomit phobics. The assessment data obtained from the three (3) different questionnaires were valuable as it added to the exploratory aim of the research which was conducted by Veale and Lambrou (2006). However, for example, the healthy controls or the panic disorder group may have had emetophobia disorder and those individuals would have been identified had the three (3) groups collectively completed all three (3) of the self-report questionnaires.

Another factor which might have impinged on the validity of the results may be that in quondam research it has been shown that many of the emetophobia respondents shared symptoms with panic disorder and some individuals in the emetophobia disorder group may have had more panic disorder symptoms and they might have been misdiagnosed. This data would have been avowed if all three (3) of the groups completed all three (3) of the instruments which were designed to be utilised in the research.

Further, there were eminently females in the vomit phobic group and the information gathered from that group is of great value because the disorder is mostly presented in females. Future research may be very valuable in attempting to assess why emetophobia disorder is so over rendered in females and the factors identified may be at the core of the development of

emetophobia disorder. Additionally, special questions related to pregnancy would have to be incorporated into that study as was found by Lipsitz et al. (2001). In the study by Lipsitz et al. (2001) the results showed that more than half of the sample avoided becoming pregnant or delayed becoming pregnant.

The most interesting findings in the study set forth by Veale and Lambrou (2006) is that the vomit phobic group reported feeling nauseas more often and there was no difference in the frequency of vomiting when they were compared to the control group. Thus, individuals with emetophobia disorder have a fear of vomiting, but they do not vomit more often than individuals without emetophobia disorder.

The study had resource to self-diagnose respondents and the respondents were overwhelmingly female. In the current research the respondents were diagnosed according to the requirements set forth in the DSM-V (American Psychiatric Association, 2013). Veale and Lambrou (2006) failed to match their control group by gender unlike the study conducted by Lipsitz et al. (2001). It is therefore possible to assume that the unequal ratio of gender across conditions may have confounded the results.

Furthermore, Veale and Lambrou (2006) went about obtaining their control group by requesting the respondents to pass the questionnaires on to their friends. This may be problematic due to a number of reasons. Firstly: there was no affirmation that these individuals did not carry a diagnosis of emetophobia disorder. Secondly: there was no assurance that the sample was representative as there was no supervision when the respondents completed the questionnaires (did the embroiled individuals complete the questionnaires?). Thirdly: if the individuals were related to the emetophobia disorder group they may have learnt some of their behaviours and the

obtained results from the control group would not suffice as an adequate baseline for comparison. The study did however yield important findings on the similarities between emetophobia disorder and panic disorder with agoraphobia. This is noteworthy as one of the control groups in the current research consisted of respondents with panic disorder with agoraphobia. Therefore, the difference in the data between the panic disorder with agoraphobia control group and the emetophobia disorder group may have provided valuable information on the distinguishing core factors of emetophobia disorder.

The respondents completed a questionnaire on the fear of vomiting and their personal experience of nausea (Veale & Lambrou, 2006). An important finding which was derived from within the emetophobia disorder group was the high ratings from the respondents' experience of nausea combined with the belief that their nausea was caused by irritable bowel syndrome. This finding may be indirectly related to gastrointestinal symptoms and future research may seek to determine whether a causal relationship exists. Therefore, the questionnaires in the current research contained questions which are directly related to irritable bowel syndrome and to gastrointestinal symptoms.

Lastly, Veale and Lambrou (2006) failed to include a question in their questionnaires to assess the respondents' association of nausea with a specific body part, a somatic symptom, a trigger, a bodily sensation or a subjective feeling. Thus, this research attempted to investigate whether the experience of nausea was directly related to gastrointestinal symptoms. A direct link in the current research may provide the empirical data to support Boschen's (2007) cognitive behavioural model of emetophobia disorder and this model may be utilised in the treatment and in the feature classification of emetophobia disorder. Treatment application may be regarded as beneficial considering that emetophobia disorder is a highly under researched disorder and this

disorder is in need of proper symptom clarification, identifying the predisposing factors and determining the maintenance behaviour which is implicated in emetophobia disorder (Boschen, 2007; de Jongh, 2012; Hunter & Anthony, 2009; Veale & Lambrou, 2006; van Overveld et al., 2008). An important suggestion in the study by Veale and Lambrou (2006) was the need to develop a proper treatment manual for emetophobia disorder. This model might be developed in conjunction with Boschen's (2007) cognitive behavioural model of emetophobia disorder as this model was created with the aim and the objective to conceptualise emetophobia disorder and to assist in the treatment of emetophobia disorder.

Hunter and Anthony (2009) successfully treated an individual with emetophobia disorder by using interoceptive exposure. Interoceptive exposure is a cognitive behavioural therapy technique used in the treatment of anxiety disorder. This therapy includes performing exercises that stimulate the physical sensations an individual experience due to their phobia (Barlow & Durand, 2005). Hunter and Anthony (2009) induced the individual with physiological symptoms which are similar to the symptoms of emetophobia disorder. This study set forth two important findings pertaining to the current research namely: the respondent reported that the physical sensations, known as the gastrointestinal symptoms, she experienced when feeling panicky were signs of immediate vomiting, and, the second finding was that her initial experience of vomiting was associated with uncomfortable gastrointestinal symptoms which caused her to develop emetophobia disorder. These findings are relevant as it overlaps with the cognitive behavioural model of emetophobia disorder, specifically, the somatisation tendency (Boschen, 2007). The somatisation tendency may be defined as a tendency to express anxiety through gastrointestinal symptoms and these symptoms are at the core of the disorder (Boschen, 2007). The findings by Hunter and Anthony (2009) are not enough to provide support for this somatisation component

which prevails at the core of emetophobia disorder mainly because the findings which were presented and the data which was collected were from a single individual. Therefore, the current research attempted to assess an adequate sample in order to obtain empirically valid results.

2.2.10 The Cognitive Behavioural Model of Emetophobia

Boschen (2007) reviewed the current conceptions of the fears which are related to vomiting. He proposed a novel account of the etiological factors and the factors responsible for maintaining emetophobia. These factors are frequently associated with the specific phobia of vomiting. He further reviewed previous treatment research and he proposed a formulation-based cognitive behavioural intervention for emetophobia disorder. Lastly, Boschen (2007) discussed and proposed methods which are necessary for the validation of the proposed cognitive behavioural model of emetophobia.

An interesting topic is non-associative learning mechanisms, and it's relation to behaviour which is discussed in the article by Boschen (2007). Non-associative learning is a relatively permanent change in the strength of a response to a stimulus due to the repeated exposure to that stimulus. Therefore, a person may experience a stronger response to gastrointestinal symptoms due to the repeated exposure to their normal everyday gastrointestinal symptoms (Boschen, 2007). Non-associative learning consists of two parts namely habituation and sensitisation. Habituation is the progressive diminution of the behavioural response probability with the continued repetition of exposure to a stimulus. An individual with emetophobia may become habituated by exposing them to a feared situation and their fear of vomiting, which derived from that situation, diminishes due to the repeated exposure to that situation (Boschen, 2007). The individual thus becomes habituated to the situation and may experience such a situation with less anxiety and

subdued fear in the future. Sensitisation is a progressive amplification of a response which occurs due to the repeated administration of a stimulus. Tolerance is a reduction in the strength of a response due to repeated exposure to a stimulus or due to the repeated administration of a stimulus. Sensitisation is the opposite of tolerance; therefore, there is an increased effect after the repeated exposure or administration of a stimulus which is contrary to the premise of habituation (Boschen, 2007). Therefore, sensitisation may be grasped in the context of emetophobia disorder as the more often the individual is exposed to their gastrointestinal symptoms, the more overpowering these symptoms become. The symptoms' effect on the individual does not decrease as subjective exposure increases, therefore, the opposite occurs in emetophobia disorder where the effect of gastrointestinal symptoms increases based on the number of times that the individual is exposed to these symptoms. Additionally, considering the aforementioned analogy it may be concluded that the exposure to a situation for an individual with emetophobia disorder may be more distressing as the individual will experience an increased fear and an elevated sense of anxiety due to the repeated exposure to that situation (Boschen, 2007).

Anxiety disorders have characteristics in common and all of the disorders which are classified as an anxiety disorder present itself with elevated levels of physiological arousal (Andrews, Creamer, Crino, Hunt, Lampe & Page, 2003; as cited by Boschen, 2007). Physiological arousal in emetophobia disorder is expressed as somatic symptoms and several of the somatic symptoms of anxiety arousal are experienced as gastrointestinal symptoms. In the current research the gastrointestinal symptoms experienced by individuals with emetophobia disorder and its relation to an individual's belief that vomiting or nausea may occur was purposefully studied. Davey, Menzies and Gallardo (1997) (as cited in Boschen, 2007) stated that phobias result from

underlying cognitive biases in the discrimination and in the interpretation of bodily sensations. Boschen (2007) insisted that the aforementioned is the key feature that supports the differentiation of emetophobia disorder from the specific phobias. Thus, for Boschen's (2007) treatment plan to be accepted as valid and reliable this key feature needed to be purposefully studied and demonstrated empirically. The current research attempted to demonstrate this key feature by setting forth results which displayed that the individuals with emetophobia disorder demonstrated a higher mean score on the assessment instruments which assessed their gastrointestinal symptoms when their scores were compared to the panic disorder with agoraphobia group and the obsessive compulsive disorder group.

A key component in the model suggested by Boschen (2007) is a tendency by anxiety vulnerable individuals to somatise their anxiety in the form of gastrointestinal symptoms. This somatisation tendency needed to be investigated in a research study which consisted of a larger sample in order to find the empirical support for the somatisation theory component which was defined as gastrointestinal symptoms. The current study pioneered a research study by replicating the aforestated guidelines and the findings which were set forth made evident that the respondents with emetophobia disorder were overly concerned about their gastrointestinal symptoms and these symptoms' relation to the possibility of immediate vomiting. The respondents with emetophobia disorder scored significantly higher on the assessment instruments which assess gastrointestinal symptoms. The item mean score and the respondent mean score was compared to the panic disorder with agoraphobia respondents and to the obsessive compulsive disorder respondents. Thus, the second feedback loop in the acute phase of the cognitive behavioural model of emetophobia disorder was successfully replicated. The data from the current research study might be applied to validate the cognitive behavioural model of emetophobia disorder to be

utilised in the treatment thereof. However, future research may attempt to assess the clinical usefulness of the cognitive behavioural model in a clinical setting with a special focus on the treatment of the somatic symptoms which are experienced by individuals with emetophobia disorder.

2.2.11 Gastrointestinal Assessment Instruments

In the study by Adam et al. (2005) the gastrointestinal symptom score (GIS) was validated by the research results. The data showed that the ten (10) item GIS (2005) is a valid and a reliable instrument for the assessment of a broad spectrum of gastrointestinal symptoms. The sample used in the development of this instrument consisted of one hundred and fifty-one individuals; ninety-five were patients with gastrointestinal symptom problems and fifty-six were healthy controls. The GIS was utilised in the current research with a specific focus on the gastrointestinal symptoms of the respondents with emetophobia disorder. The gastrointestinal symptom score contains ten (10) items and these include nausea, sickness, vomiting, bloating, abdominal cramps, early satiety, acidic eructation or heartburn, loss of appetite, retrosternal discomfort and epigastric pain or upper abdominal pain. In the current research the assessment items was presented in the form of a questionnaire and each item was clearly defined.

The main finding set forth in the research by Adam et al. (2005) showed that the GIS accurately assessed the respondents' symptom severity. Thus, if it is possible to measure the severity of these symptoms in individuals with emetophobia disorder we might be able to assert that the experience of gastrointestinal symptoms subdue the majority of the other triggers associated with nausea and the possible occurrence of vomiting. The researcher may want to assert that these are the symptoms which have a direct relation to an individual's thoughts or cognitions into

assuming that immediate vomiting would occur. Therefore, the findings might be extremely relevant for future research.

Rentz et al. (2004) developed and evaluated the patient assessment of upper gastrointestinal symptom severity index (PAGI-SYM). This measure was developed specifically to assess patients with gastrointestinal disorders and to capture the individual's personal experience with which they associate their gastrointestinal symptoms. The content of the items in the PAGI-SYM (2004) was constructed and based on published medical literature; heretofore developed gastrointestinal symptom scales; semi-structured interviews and interviews with gastroenterologists. The final PAGI-SYM (2004) contains twenty (20) items and the items were presented in six (6) subscales. The subscales includes: heartburn or regurgitation; nausea or vomiting; post prandial fullness or early satiety; bloating; upper abdominal pain and lower abdominal pain. The final results yielded in the research by Rentz et al. (2004) deemed the PAGI-SYM valid, reliable, viable and accurate for individually reported symptoms and these symptoms' relation to gastrointestinal symptoms. Thus, the current research utilised this measure to assess the respondents' personal experience of gastrointestinal symptoms and how these symptoms consociate to the respondents' belief that immediate vomiting would occur.

2.3 Summary

The research related to emetophobia is not as limited as the treatment success for individuals with emetophobia disorder. The information related to the treatment of emetophobia disorder has increased recently and is evident in a number of new publications being published. Emetophobia disorder and gastrointestinal symptoms are closely intertwined (Boschen, 2007).

The literature which was reviewed focused specifically on emetophobia disorder and gastrointestinal symptoms. An aim of the current research was to reputably provide empirical support for the cognitive behavioural model of emetophobia. The importance of this model is based on the fact that this model was specifically developed for emetophobia disorder (Boschen, 2007). This theorised model's aim is to adequately conceptualise and to strategically treat emetophobia disorder. The most important information set forth in the literature review was the assessment inventory for vomit phobia. The SPOVI (the specific phobia of vomiting inventory) is a novel self-report inventory which was validated (Veale et al., 2013). The SPOVI (2013) is a contribution to the field of emetophobia on the grounds that the assessment options are limited (Hunter & Anthony, 2009; van Overveld et al., 2008). The EMDR (eye movement desensitisation and reprocessing) is an eight phase psychotherapeutic approach which resolves memories resulting from unprocessed life events (de Jongh, 2012). Kobori (2011) implemented CBT (cognitive behavioural therapy) and this approach proved to be successful, specifically; by eradicating and eliminating safety seeking behaviour. Thus, based on the findings from the EMDR approach and the CBT methods the findings showed that emetophobia disorder is in fact treatable. The emetophobia symptom survey was regarded and the survey contributed to the field by providing information about the etiology of emetophobia disorder and the benefits of utilising the internet to conduct research (Lipsitz et al., 2001). The assessment of a locus of control for females with emetophobia disorder showed that the respondents had a great need to be in control and to retain control of their bodily processes (Davidson et al., 2008).

All of the aforementioned studies assessed females in view of the fact that the disorder of emetophobia presents mostly in females and is characterised by a high internal locus of control (Boschen, 2007; Davidson et al., 2008; Lipsitz et al., 2001; Veale & Lambrou, 2006). Davidson

et al. (2008) incorporated only females to participate in his study, due to the fact that only three (3) males with emetophobia disorder responded. Furthermore, Lipsitz et al. (2001) found that eighty-nine percent (89%) of their respondents with emetophobia were female and they matched their control group by gender to ensure more accurate results. Additionally, Veale and Lambrou (2006) found an overwhelming bias of women in their research particularly ninety-seven percent (97%) of their sample whom presented with emetophobia disorder were female. Furthermore, Boschen (2007) stated that treatment studies involving respondents with emetophobia disorder all employed female patients and there were no published treatment cases of males with emetophobia in existence at that time. Therefore, this research controlled and matched gender by specifically focusing on females and by having the same number of female respondents in each group.

The subjective control related to emetophobia disorder showed that the respondents attempted to control their environment and their life (Veale & Lambrou, 2006). The internet based study of van Overveld et al. (2008) on disgust propensity and disgust sensitivity showed that there might be a causal link between disgust and the initial development of emetophobia, and that the respondents related specific bodily symptoms to disgust. Interoceptive and situational exposure was successful in the study by Hunter and Anthony (2009). Veale and Lambrou (2006) set forth valuable findings on emetophobia disorder as they conducted an exploratory study. The cognitive behavioural model of emetophobia required empirical support which are related to the somatisation tendency, particularly the gastrointestinal symptoms, expressed and experienced by individuals with emetophobia disorder (Boschen, 2007). The current research assessed gastrointestinal symptoms (a somatisation tendency) and was guided by this model. Lastly, the gastrointestinal assessment instruments (the GIS and the PAGI-SYM) were regarded,

specifically, the items and the validity of the instruments for a sample presenting with emetophobia disorder (Adam et al., 2005; Rentz et al., 2004). In the following chapter; the paradigms and the conceptual frameworks underlying the current research will be discussed.

CHAPTER 3

THEORETICAL PARADIGMS

3.1 Paradigm

Theoretical frameworks are ideas, assumptions or conceptions about the world. These frameworks are not regarded as absolute laws although they guide the understanding of the world (Bosch, 1991; Gregen, 1999; Visser, 2007). A theoretical framework may likewise be described as a paradigm. A paradigm refers to the way the researcher understands the world. This understanding is informed by the way the researcher views the world (Maree & van der Westhuizen, 2009). Furthermore, paradigms are frameworks of thought through which questions of human nature and research demands can be posed, pondered and answered.

The interpretive paradigm applies to the current research. The interpretive paradigm proposes that human beings cannot be studied by drawing on the theories and the models which are developed for the physical sciences as human beings are qualitatively different from natural events (Duncan, Bowman, Naidoo, Pillay & Roos, 2007). An individual's reality is constructed by subjective perception and therefore predictions cannot be made (Babbie, 2005). Thus, an individual with emetophobia has his/her own subjective perception which relates to his or her experience of gastrointestinal symptoms. Furthermore, individuals have subjective cognitions, subjective emotions, subjective genetic vulnerabilities and subjective experiences, therefore, human beings should be studied actively (Duncan et al., 2007).

Ontology is the nature of being, becoming, existing or reality. Ontology is what we know about reality (Duncan et al., 2007; Maree & Van der Westhuizen, 2009). Interpretive ontology states

that a definitive universal reality does exist, however, it will be interpreted individually (Duncan et al., 2007). Individuals with emetophobia disorder interpret their reality subjectively and they use language to make sense and express their interpreted reality. Thus, individuals with emetophobia may use language by means of communication. They can verbally express their experience of emetophobia disorder and their fear of experiencing gastrointestinal symptoms which may lead to the possibility of immediate vomiting.

Epistemology is the nature of knowledge; the scope of knowledge; the relationship of the researcher and what is known (Duncan et al., 2007; Maree & van der Westhuizen, 2009). Interpretive epistemology states that perceived knowledge can be obtained, but only about the context (Duncan et al., 2007). Therefore, the perceived knowledge an individual with emetophobia disorder has about their gastrointestinal symptoms, as well as the specific meaning and its personal relevance can only be obtained from the contexts in which they occur.

In conclusion, paradigms are the frameworks which guide any research endeavour. The current research was guided and informed by the interpretive paradigm and special attention was placed on the ontological and epistemological building blocks from the interpretive paradigm. In this chapter the existing paradigms and theories will be elaborated on and the focus is placed on the paradigms or the theories which inform emetophobia disorder and its occurrence, its onset, the triggers, the maintenance thereof and the treatment methods.

3.2 Psychological Disorder

The main facet in the field of psychology is related to treating individuals with a disorder. The objective is to classify certain behaviour as abnormal, however there are many different cultures

and temperaments inherent to each individual. Individuals are unique, each have their own personal life experience, their own perceptions and their own subjective reality. Individual with a disorder do not necessarily conform adequately to society and they have great difficulty to function according to the societal norms of their personal culture, the society, their community or their associated peer group. Defining normal and abnormal functioning is an extremely trying task and functioning should be considered on a continuum or on a dimension ranging from minimal- to moderate- to major dysfunction rather than attempting to diagnose a specific disorder to present in the same manner or in the same degree within all individuals diagnosed with emetophobia disorder (Barlow & Durand, 2005).

A psychological disorder is described as "a psychological dysfunction within an individual which is associated with distress or impairment in functioning and a response that is not typical or culturally expected" (Barlow & Durand, 2005, p. 2). Furthermore, a psychological disorder is defined as "behavioural, emotional or cognitive dysfunction which is unexpected in their cultural context and it is associated with personal distress or substantial impairment in functioning" (Barlow & Durand, 2005, p. 4).

According to Barlow and Durand (2005) for an individual to be diagnosed with a disorder they have to satisfy the aforementioned criterion. Thus, a psychological dysfunction is when an individual experiences a breakdown in cognitive, emotional or behavioural functioning (Barlow & Durand, 2005). An individual with emetophobia disorder may experience an interruption in cognitive functioning when such an individual is unable to perform normal and routine everyday cognitive tasks such as experiencing normal thought patterns and deriving thoughts from certain stimuli which are readily available in their environment. They might have great difficulty forming new memories or retrieving previously retained memories due to their disorder.

A breakdown in emotional functioning may be present when an individual shows low or no affect and they present emotions associated with anhedonia. Anhedonia may be defined as the inability to experience pleasure and it is present in mood disorders such as depression (Barlow & Durand, 2005). An example may be when an individual does not experience excitement or happiness related to events which habitually would excite them and they would previously have experienced happiness to some extent (Barlow & Durand, 2005). Low affect may be explained as an individual's inability to respond to emotionally laden information in an appropriate manner (Barlow & Durand, 2005). An example of low affect is when a person laughs at an inappropriate time, for example they will laugh when someone has passed away instead of crying, thus, they are unable to present the appropriate response in conversations with others and they might display inappropriate behaviour in social situations.

Lastly, a breakdown in behavioural functioning is evident when an individual is restricted to perform their normal everyday behavioural tasks. They may restrict their behaviour and permit themselves to experience minimal activities in order to avoid the triggers which they associated with their disorder. A psychological dysfunction is present in the case study by Hunter and Anthony (2009) in which the respondent restricted her behaviour by not allowing herself to finish a full can of soda or to ingest an adequate portion. She was thus disinclined to finish a full can of soda due to her fear that she may vomit should she ingest the entire contents of a full can of soda.

Additionally, an individual has to experience personal distress associated with emetophobia disorder. Distress is defined as severe pressure or strain (Barlow & Durand, 2005). In emetophobia disorder anxiety is extremely relevant in the development and in the maintenance of the disorder (Veale & Lambrou, 2006). Anxiety is described as a negative mood state which

is characterised by bodily symptoms of physical tension and apprehension about the future (Barlow & Durand, 2005). Thus, the individual may be extremely anxious and distressed to ingest certain types of foods, they may postpone becoming pregnant or they might restrict their behaviour to avoid certain environments because these environments may involve individuals whom are likely to vomit or might infect them with an illness (Hunter & Anthony, 2009; Lipsitz et al., 2001).

Lastly, a person has to present an atypical response within their culture of origin. An atypical response constitutes a deviation from the norm and individuals do not show behaviour considered typical in a culture. A hypothetical example of an atypical cultural response is when an individual is expected to experience great excitement and pleasure associated with an act of vomiting forming part of a ritualistic practice instigated within their cultural context. However, they experience psychological dysfunction associated with the ritualistic cognitive detail, the emotional interaction and they restrict their behaviour within the context of the ritual. They may similarly experience great distress during the ritual and an inability to become excited or they are unable to experience pleasure during the ritual. It is very important to take into consideration that all three of the aforementioned requirements has to be fulfilled to be regarded as a disorder because an individual who does not carry a diagnosis of emetophobia disorder may become quite distressed with any factor which is associated with or related to vomiting. However individuals without emetophobia disorder functions normally within such a situation which includes factors that they associate with vomiting and they do not demonstrate any avoidance behaviour or experience any of the triggers associated with vomiting.

In the previous section the criteria for identifying a psychological disorder was discussed and is evident in figure 3.1 below. What will follow is a consideration on the extent to which human

beings are able to behave voluntarily or whether they are determined to behave in a certain manner.

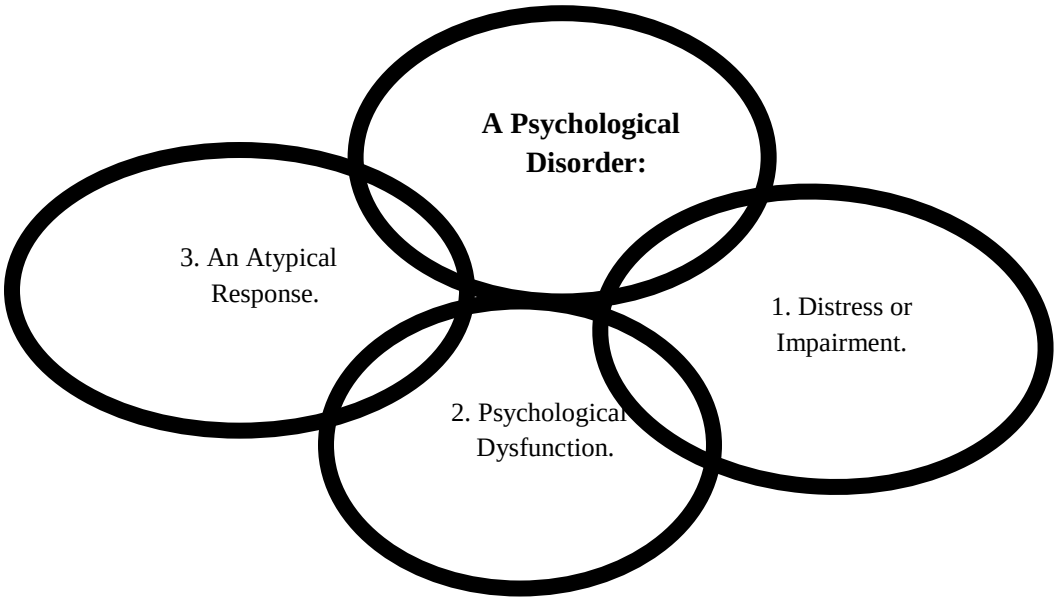


Figure 3.1 **A Psychological Disorder.**

3.3 Determinism and Voluntarism

The basic question to determinism and voluntarism is: to what extent are individuals free to make choices as to how and why they behave the way they do (Jordaan, 2009). The diathesis-stress model assumes that individuals inherit certain tendencies to express certain traits or behaviours and these tendencies may be activated under certain conditions of stress (Barlow & Durand, 2005). Thus, according to the diathesis-stress model people are not free to make all their choices voluntarily as other factors such as genetic make-up, environments, cognitions and

events or situations influence the way human beings behave. The assumptions about human nature are evident in figure 3.2 (page 65).

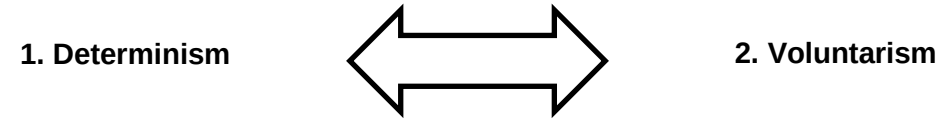


Figure 3.2 **Assumptions about Human Nature.**

These tendencies may additionally be referred to as vulnerability. Some individuals are endowed with a greater vulnerability than others to develop a disorder (Barlow & Durand, 2005). In the research conducted by Hunter and Anthony (2009) the individual states that she developed emetophobia disorder after a stressful life event. It is possible to assume that she was predisposed to anxiety and were particularly vulnerable (determined) and this is why she developed emetophobia disorder. The stressful life event was thus a situational factor.

Individual nature is determined by being exposed to internal and external events which readily exists in the environment and is freely available to everyone. It is voluntary, if only, the initial selection of meaningful information (both internal and external) upon which individuals plan or adapt their behaviour accordingly. This initial selection of information is purely out of choice (voluntary). However, as time progress individuals may become determined to respond in a specific manner based on learning from past choices and actively selects information or pay more attention to certain information to ensure that they avoid possible triggers. An example

may be the interpretation of gastrointestinal symptoms as distressing or dangerous and may lead to possible vomiting. Therefore, their future behaviour becomes determined due to prior interpretation or learning and may be compared to the conditioning of behaviour which is similar to the experiments implemented by Ivan Pavlov (1849-1936) (cited in Pischeck-Simpson, Boschen, Neumann & Waters, 2009). The individual acquired a conditioned learnt response to react in a distressing manner to gastrointestinal symptoms and their current- and future behaviour continues in the same direction forming a positive feedback loop (Visser, 2007). Thus, no learning or any form of behavioural adaptation occurs and future behaviour remains unchanged.

An additional factor to consider is the extent to which the individual may be vulnerable (diathesis-stress model) or determined to respond to a stressful life event. The individual might display the presence of anxiety in their behaviour and in their physiological response and then consequently they might develop a disorder (Barlow & Durand, 2005). Furthermore, an individual may be determined by their genetic make up to respond in a certain manner which eliminates their free will to make a choice on how they would feel comfortable to respond. This determined response may contribute to what they think, feel and do in the future and in such a way their determined response continue to affect their future behaviour. Therefore, their response may be determined to a much greater degree.

In conclusion, it may be inferred, specifically for individuals presenting with emetophobia disorder, that such an individual is determined (vulnerable) to respond negatively to a stressful life event such as a previous event of vomiting or a bad experience involving vomit. In the current research it is very important that this tendency (diathesis-stress model) expressed by individuals with emetophobia disorder to fear the possibility of vomiting is related to gastrointestinal symptoms (Barlow & Durand, 2005). Individuals with emetophobia disorder

will interpret the normal gastrointestinal symptoms they experience after the onset of their disorder as distressing. The individual thus proceeds to develop a disorder due to the fact that the individual is unable to make a choice and they are unable to interpret their experience of gastrointestinal symptoms as normal bodily functions. They are unable to avoid associating these normal gastrointestinal symptoms as distressing and the individual does not have voluntary control over the physiological arousal (raised heartbeat and hypervigilance) to the threatening gastrointestinal symptoms (readily available internal triggers) (Boschen, 2007).

3.4 The Cognitive Behavioural Model of Emetophobia

Boschen (2007) utilised the sources of established cognitive and behavioural models, as the foundation for his research, and proposed a detailed model of emetophobia. This model assumes that emetophobia disorder is continually maintained and occurs in three phases namely: the predisposing factors, the acute phase and the maintenance phase.

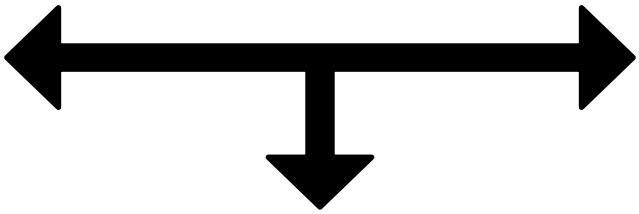
The predisposing factors include a general anxiety vulnerability and a somatisation vulnerability. A general anxiety vulnerability is expressed by individuals with emetophobia disorder when they share symptoms with other disorders or display co-occurring disorders. A somatisation vulnerability implies that individuals are most likely to direct the anxiety they experience towards the experience of somatic symptoms such as gastrointestinal symptoms.

The acute phase follows by being oversensitive to somatic cues (gastrointestinal symptoms) due to a previously endured experience with actual vomiting. This oversensitivity coerce individuals with emetophobia disorder to be more susceptible to their normal gastrointestinal symptoms and non-threatening stimuli (normal gastrointestinal symptoms) are then associated with the

possibility of vomiting. Associative learning (vomiting or observed vomiting) strengthens the belief that actual vomiting will occur. All of the symptoms in the acute phase form a positive feedback loop (Boschen, 2007).

Another positive feedback loop maintains the previous loop because the individual agonises about future vomiting and adapts their behaviour accordingly. This is evident when individuals with emetophobia disorder constantly assess the food they ingest to ensure that it has not reached its expiration date or alternatively avoids situations which they assume may possibly trigger them to vomit (Veale & Lambrou, 2006). Females with emetophobia disorder may furthermore postpone having children due to their fear of morning sickness (Lipsitz et al., 2001). Adaptation manifests by being oversensitive (again) to gastrointestinal symptoms which leads the individual back to the acute phase (oversensitive to normal gastrointestinal symptoms).

A third positive feedback loop occurs when the person avoid situations such as pubs, large amounts of food, people whom are ill or situations which are similar to the situation in which the onset of their disorder occurred and these situations are associated with nausea. This avoidance impacts negatively as it does not allow the individual to experience gastrointestinal symptoms and they are unable to realise that their gastrointestinal symptoms are normal bodily reactions and will not lead to immediate vomiting. The third positive feedback loop allows for nix learning to occur, therefore, future behaviour will be repeated (Boschen, 2007). The maintenance of emetophobia disorder as is theorised by the cognitive behavioural model of emetophobia may be viewed in figure 3.3 below (page 69).



Phase 1:

Predisposing Factors.

Phase 3:

The Maintenance Phase.

Phase 2:

The Acute Phase.

- Predisposing Factors:
  - A General Anxiety Vulnerability.
  - A Somatisation Vulnerability.

- The Acute Phase:
  - Oversensitive to normal Gastrointestinal Symptoms.
  - More susceptible to non-threatening stimuli.
  - Associative learning.

- The Maintenance Phase:
  - Adaptation due to worry.
  - Avoidance of people and situations.

Figure 3.3 **Maintenance of Emetophobia.**

3.5 Systems Theory

The systems theory states that a system is a network of interrelated relationships. All of the underlying components which maintain emetophobia disorder are connected to each other (directly or indirectly) (Visser, 2007). These underlying components include a genetic vulnerability; life events, stressors, avoidance and safety seeking behaviour (Barlow & Durand,

2005; Lipsitz et al., 2001; Veale & Lambrou, 2006). The systems which are delineated in emetophobia disorder are evident in figure 3.4 below.

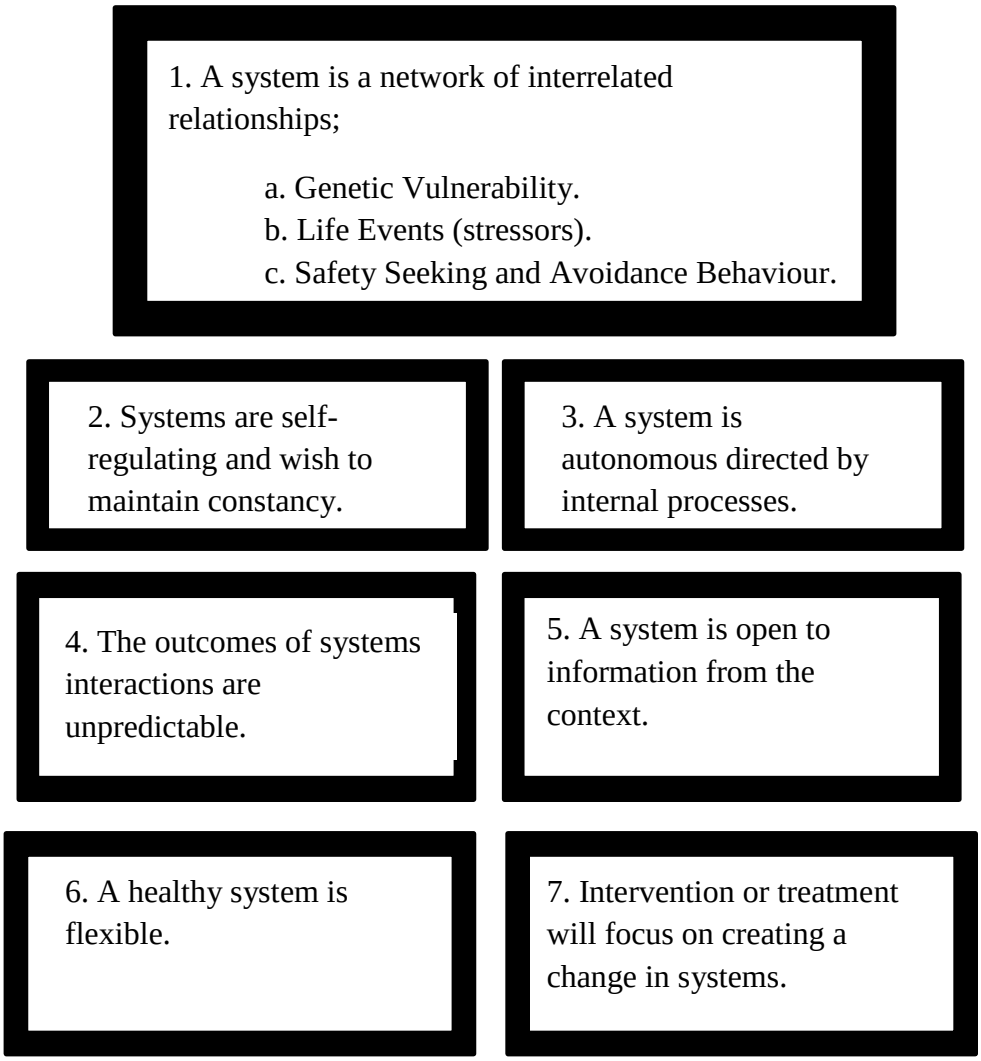


Figure 3.4 **The Systems Theory.**

The system which maintains emetophobia disorder consists of external and internal events as was found by Davidson et al. (2008). The disorder of emetophobia is maintained when the individual actively avoids external situations such as the situation in which they developed

emetophobia and the situations which they personally associate with emetophobia. The disorder of emetophobia is internally maintained by individuals when they monitor their gastrointestinal symptoms and what they ingest such as beverages, food or medication. They may additionally monitor the amount of something they ingest as is evident in the research by Hunter and Anthony (2009) in which the individual would not consume the contents of an entire milkshake. A part of the treatment was thus to motivate the respondent to finish a milkshake and thereafter realise that she would not vomit if she consumed the full quantity thereof.

An individual with emetophobia disorder may possibly be treated by persuading such an individual to re-experience a traumatic memory associated with nausea. Another option may be to persuade the individual to ingest a certain type of food or medication which they fear and believe may possibly cause them to vomit. An alternative option may be to experience the effects of catharsis by means of communicating the initial onset of their disorder based on the memories from their subconscious and possibly writing about their experience. This is known as the catharsis effect and was implemented by Sigmund Freud (1856-1939) (Sigelman & Rider, 2006). The individual may attempt to visit a situation associated with vomiting and in such a way they are able to approach and endure these situations with less distress. They may initiate an alternative coping mechanism which may be stored in their short term memory and thereafter be encoded in their long term memory. The individual might be able to create or form a novel neural pathway which may possibly allow them to associate the initial distressing situation with a positive experience and consequently form positive future associations.

Systems are self-regulating and wish to maintain constancy (Visser, 2007). The individual reacts to gastrointestinal symptoms by being relentlessly aware of their gastrointestinal symptoms. If individuals were to experience gastrointestinal symptoms they would immediately change

something about themselves or their environment to ensure that their gastrointestinal symptoms remains constant and does not result in the occurrence of immediate vomiting (Boschen, 2007).

A system is autonomously directed by internal processes (Visser, 2007). An individual has to present with a genetic vulnerability (according to the diathesis-stress model and the triple vulnerability theory) in order to develop a disorder such as emetophobia (Barlow & Durand, 2005). Furthermore, the individual experiences gastrointestinal symptoms which in turn direct the person's cognitions into believing that immediate vomiting will occur.

The outcomes of systems interactions are unpredictable (Visser, 2007). Each individual who experiences a stressful encounter with vomit does not proceed and develop emetophobia disorder. Therefore, particular systems interact and may lead to emetophobia disorder. The development of emetophobia disorder flourishes when the person is endowed with a pre-dispositional vulnerability to develop a disorder. The development of emetophobia disorder may therefore occur due to stress from a life event (as wonted by the diathesis-stress model, cited in Barlow & Durand, 2005). This vulnerability can be genetic, psychological or biological and include situational factors which contribute to possibly developing this disorder after a stressful life event.

A healthy system is flexible (Visser, 2007). The aforementioned is not the case regarding emetophobia disorder; the system is unhealthy and results in the development and in the maintenance of this disorder. There is no balance between the positive and the negative feedback loops, but it consists mainly of positive feedback loops as is stated by Boschen (2007). Thus, the system continues moving in the same direction (positive feedback loop) and no erudition betides. The individual does not learn that normal gastrointestinal symptoms do not

actually lead to immediate vomiting and their learnt reactions, behaviours and formed beliefs regarding their subjective experience of gastrointestinal symptoms are unceasing.

In an intervention or for treatment the clinician will focus on creating a change within the existing systems (Visser, 2007). There are many treatment methods which have been developed and are available to be utilised in the field of psychology and these methods ranges from medication to therapy (Barlow & Durand, 2005). The medications which are used to treat specific phobias such as emetophobia are mainly tranquilisers. These assists individuals to reduce their anxiety, however, medication based therapies are problematic due to the fact that individuals monitor everything they ingest because of their fear of vomiting (Lipsitz et al., 2001). Treatment methods for specific phobias, such as emetophobia, require structured and consistent exposure-based exercises (Barlow & Durand, 2005).

A change in systems may be achieved through the medium of restoring stability to the unhealthy system by incorporating negative feedback loops (directing change in an antipodal direction). In the case of emetophobia a negative feedback loop may be incorporated when a person forms a new belief regarding their experience of gastrointestinal symptoms or learning takes place in which the individual realises that the experience of gastrointestinal symptoms are normal bodily reactions and this will not necessarily advance to immediate vomiting. The aforementioned was achieved in the study by Hunter and Anthony (2009) in which a single individual was treated by means of interoceptive and situational exposure. The respondent realised that the experience of gastrointestinal symptoms were normal bodily reactions and these will not lead to immediate vomiting. Thus, by incorporating a negative feedback loop the individual may proceed to lay the foundation toward possible recovery. The origination of permanent negative feedback loops will assist to prevent relapse in the future. The prior premise was evident in the publications by de

Jongh (2012), Hunter and Anthony (2009) and Kobori (2011) in which three individuals were cured by various methods, namely: the eye movement desensitisation and reprocessing (EMDR) approach (processing disturbing memories thought to be causal in the development or in the etiology of emetophobia); cognitive behavioural therapy (interoceptive- and situational exposure which is based on the respondents fears) and cognitive behavioural therapy (attention training and behavioural experiments in order to eliminate safety seeking behaviour, avoidance behaviour and any associated triggers).

Additionally, a system is open to information from the context, but cannot be manipulated by processes outside of the system (Visser, 2007). Thus, a psychologist may attempt to reinforce the idea that gastrointestinal symptoms are normal and will not lead to vomiting; however the person's cognitions form part of the system and their held beliefs are maintained and directed by these internal processes. In response to their cognitions and their internal processes they may discontinue therapy; reject treatment; willingly refuse to report or disclose their experience of particular symptoms or to communicate their distressing cognitions. The aforementioned is evident in the sample feedback data which was collected by Lipsitz et al. (2001, p. 152) "many respondents would not bring up emetophobia to their therapist and most said they would not attempt an exposure-based treatment". An individual with emetophobia disorder may be manipulated by processes outside of the system such as the environment; however, the interpretation which the individual attaches to events in consummation determines their reaction to the event which is partially based on previous learning or conditioning. This is evident in the work of Ivan Pavlov (1849-1936) known as and referred to as Pavlovian Conditioning (Pischeck-Simpson et al., 2009).

3.5.1 Pavlovian Conditioning

Pavlovian conditioning is a behavioural paradigm in which an initially neutral cue (the conditioned stimulus, CS) is paired with an aversive stimulus (the unconditioned response, US) which elicits a fear (unconditional response, UR). The neutral cue or the conditioned stimulus is usually a tone and the unconditioned stimulus in the present research would be related to vomiting (Mash & Wolfe, 2005). The individual would then become conditioned, that is to associate the tone with the unconditioned stimulus and fear would be elicited (unconditioned response). As a result of this pairing, the respondent with emetophobia disorder will form an associative memory between the CS and the US. After the conditioning the respondent will exhibit a fear (conditioned response, CR), which is a defensive behaviour related to, but not identical to the UR (Mash & Wolfe, 2005). Aside from the fear of the tone (cued fear), the respondents are inclined to fear environmental contexts which are associated with the shock administration (contextual fear). An individual with emetophobia may be treated by attempting to create new thought patterns by reason of pavlovian conditioning (Mash & Wolfe, 2005). Treatment success would rely on the willingness of the individual to be conditioned and the practitioner would have to assess the situation and adapt their treatment approach accordingly. The individual may be conditioned by exposing themselves to situations or to thoughts which provokes anxiety. The individual should then overcome these thoughts or these situations and the novel coping mechanism should be paired with a conditioned stimulus. The conditioned stimulus should be created by the individual propruim and they should attempt to retain the conditioned stimulus response. They might have to capture the created conditioned response by writing it down. The individual and the practitioner may proceed to ensure progress by working through the convocation of anxiety provoking thoughts and the preponderance of the trigger

situations, the individual has to be compelled to refer to the positive conditioned responses. The aforementioned method should be repeated until the individual (with the assistance of a practitioner) overcame their fear of vomiting. Positive conditioned responses should preferably be created by the individual and these may include the ideal for the individual. In a very serious case where the individual is unable to cope with their phobia or they might have attempted to commit suicide on several occasions and they would plan another attempt to commit suicide, a radical approach may be attempted by implementing a surgical procedure. The individual's brain pathways would have to be recreated or eliminated and novel pathways would have to be created. Thus, neural activity would then change completely and the individual may possibly be rehabilitated. The aforementioned would be successful if the individual would be able to eliminate and avoid any of the previous thoughts or situations related to their initial development of emetophobia disorder as the perpetuation of these thoughts or situations might possibly result in a relapse.

3.6 The Diathesis-Stress Model and the Triple Vulnerability Theory

Scientists assume that there is a specific method of interaction between genes and the environment. The diathesis-stress model posits that individuals inherit tendencies to express certain traits and behaviours. These traits and behaviours may be activated during certain conditions of stress (Barlow & Durand, 2005). Thus, an individual who develops a disorder genetically inherited a tendency to express certain traits and behaviours. The diathesis-stress model and the triple vulnerability theory may be viewed in figure 3.5 (page 79) and figure 3.6 (page 80) below.

In emetophobia disorder the individual may have inherited a tendency to be disgusted or they have a high level of disgust sensitivity as is evident in the study by van Overveld et al. (2008). Disgust sensitivity is related to the degree of negativity with which individuals evaluate their disgust experience. It may withal be possible that an individuals are obsessed with the inner workings of their bodies and they inherited a tendency to fear vomit or the act of vomiting (Hunter & Anthony, 2009). Therefore, they constantly evaluate their environment or their gastrointestinal symptoms to ensure that they avoid the possibility of consequent vomiting. This is evident in the research set forth by Boschen (2007) and Veale and Lambrou (2006).

A tendency is known as a diathesis and a diathesis is a condition which makes one susceptible to develop a disorder (Barlow & Durand, 2005). Individuals with emetophobia may have inherited a diathesis and when they experienced a stressful life situation or a traumatic event they developed emetophobia. The aforementioned is evident in the case study by de Jongh (2012, p. 11) in which the respondent developed emetophobia in kindergarten "the mess on the table, the moment that my classmate vomits all over the table". Similarly in the case study by Kobori (2011, p. 173) the respondent developed emetophobia before the age of 10 and she developed panic disorder as a comorbid disorder when she was twenty-eight (28) years old "the manner in which she was coughing reminded her of the cough she had experienced when she was vomiting as a child. Physiologically she started perspiring profusely, without any heat, and her arms and legs became numb. Following this episode, panic attacks frequently occurred".

Thus, each of the aforementioned individuals retained a diathesis to develop a disorder when they experienced certain conditions of stress. The key factor in the diathesis-stress model is that the diathesis is genetically based and the stress is environmentally based, however, the diathesis and the stress are required to interact in order for the person to develop a disorder (Barlow &

Durand, 2005). This may explain why we are not simply born with a disorder and a possible reason for the development of a disorder such as emetophobia in childhood and later in life after the experience of a stressful life event (de Jongh, 2012; Kobori, 2011; Lipsitz et al., 2001).

Furthermore, we are born with certain genes which allows for a vulnerability to possibly develop a disorder. This genetic vulnerability is assumed by the triple vulnerability theory. An individual has a generalised biological vulnerability to develop a disorder (Barlow & Durand, 2005). A generalised biological vulnerability entails a heritable contribution to negative affect (Barlow & Durand, 2005). Thus, an individual is born with a generalised biological vulnerability to associate the loss of control over life as negative, the individual may then experience an episode of vomiting and associate this episode with a loss of control over the inner working of their bodies and consequently they might develop emetophobia. The aforementioned is evident in the study by Davidson et al. (2008) in which the respondents were assessed in order to evaluate their sense of control over their bodies and their environment and whether they believed they were able to control their bodies and their environment in order to avoid the possibility of vomiting. The smaller the vulnerability, the greater the life stress required to develop a disorder (Barlow & Durand, 2005). Thus, if an individual has a small vulnerability to develop emetophobia and they may experience a moderate amount of life stress then they would not develop emetophobia. Similarly, the greater the vulnerability the less life stress required to develop a disorder (Barlow & Durand, 2005). Thus, if an individual has a great vulnerability and they experience minimal life stress then they will develop emetophobia disorder. Therefore, this individual may hypothetically develop emetophobia disorder by watching a film and one of the characters vomit in the film. They would then associate the visual stimuli with extreme distress and they develop emetophobia disorder. Furthermore, this individual may have a greater chance

to develop a whole range of comorbid disorders due to their heightened vulnerability (Barlow & Durand, 2005).

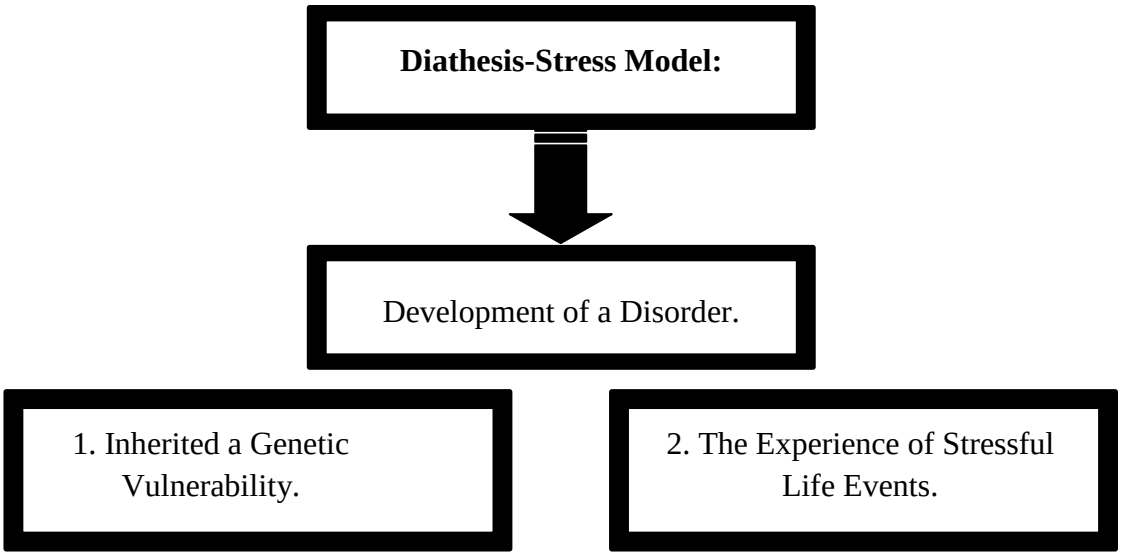


Figure 3.5 **The Diathesis-Stress Model.**

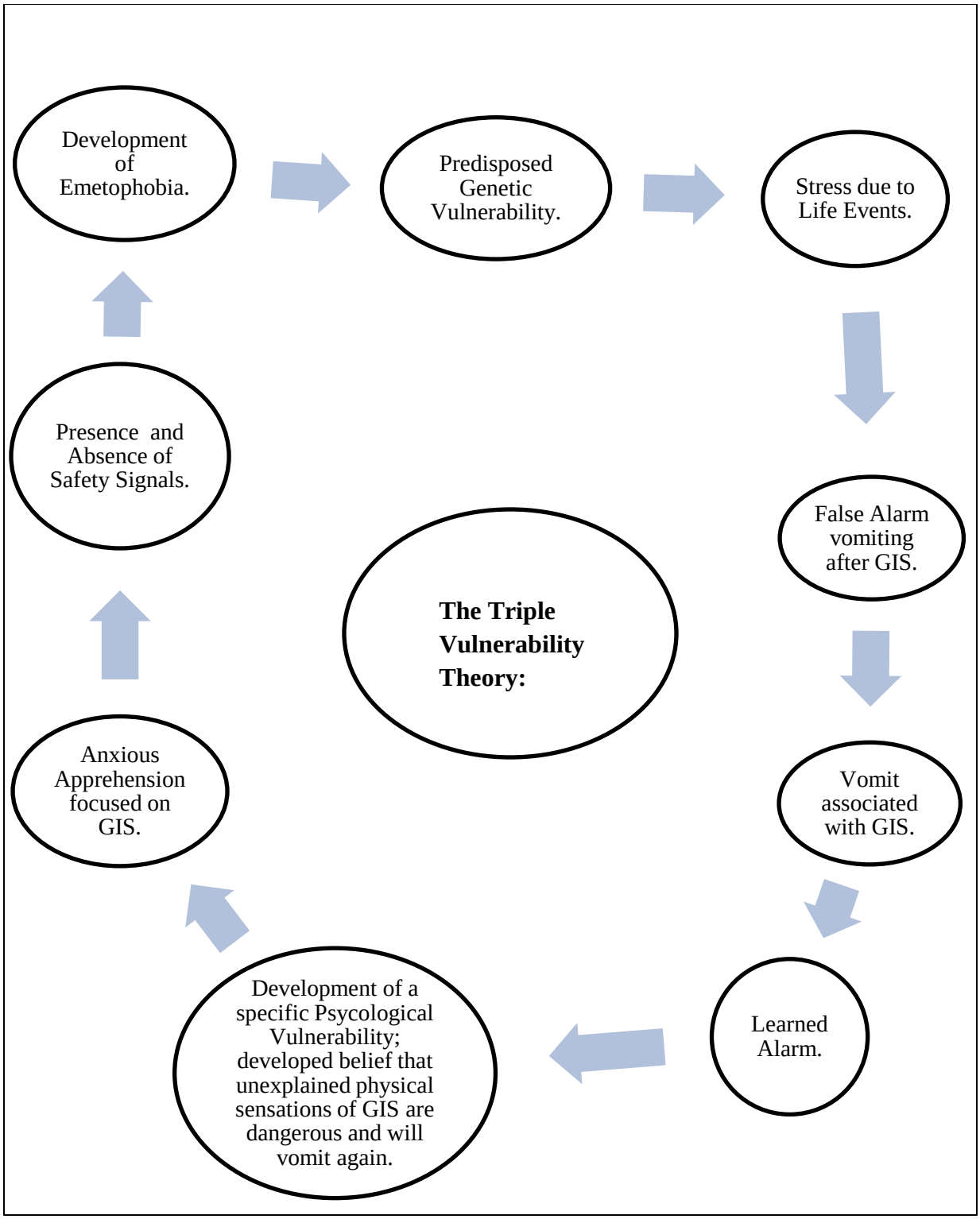


Figure 3.6 **The Triple Vulnerability Theory.**

3.7 Summary

In this chapter paradigms were explained along with the foundations of research; namely ontology and epistemology. An elaboration of the requirements constituting a psychological disorder followed, next determinism and voluntarism were discussed. Thereafter the cognitive behavioural model of emetophobia was deliberated on. The systems theory along with the theory's application on emetophobia disorder and the role of the systems theory in the maintenance of emetophobia disorder were explicated. Lastly, the diathesis-stress model and the triple vulnerability theory were detailed. In the following chapter the research design will be presented. This chapter includes a description of the research aims, the population and the sample, the research strategy and the research design, the assessment instruments which were implemented, the data collection procedure, the data analysis and the reliability and the validity of the current research.

CHAPTER 4

RESEARCH DESIGN

4.1 Introduction

Methodology is the science of inquiring about phenomenon and it is the ways in which we acquire knowledge. The fundamental question related to methodology is how do we know? (Puttergrill, 2008). An idiographic approach entails an approach seeking to explain the causes of a particular condition or event, this approach focuses on the individual and on the understanding of individual behaviour (Babbie, 2005). The current research made use of an idiographic approach and focused on the individual behaviour of the respondents with emetophobia disorder and their personal association and experience of their gastrointestinal symptoms. There are no studies to date (2015) which have focused specifically on assessing the gastrointestinal symptoms which accompanies emetophobia disorder.

Furthermore, methodology is the systematic, theoretical analysis of the methods applied to a field of study and it is the science of finding out (Duncan et al., 2007; Puttergrill, 2008). Methodology is different from method and methodology may be understood as the investigation of the concepts, theories and principles of reasoning on a subject. The method is defined as the research technique or the technical procedure of a discipline (Puttergrill, 2008).

Interpretive methodology states that data needs to be organised systematically to ensure that there transpires an understanding of subjectivity and meaning (Duncan et al., 2007). The data acquired in the current research was arranged in a specific order to allow the researcher to assess the respondents' subjective experiences of gastrointestinal symptoms and whether their

subjective associations of these symptoms might indicate the possibility of immediate vomiting to occur. Therefore, the questionnaires which were incorporated measured the subjective responses from the respondents and whether they believed that the experience of a gastrointestinal symptom or their experience of gastrointestinal symptoms would lead to immediate vomiting.

The mode of inquiry which informed the research design was quantitative. A quantitative method is based on measuring a variable for individuals. The variable is a numeric value which may be submitted for statistical analyses and interpretation (Gravetter & Forzano, 2006). Therefore quantitative research involves measuring variables to obtain scores and to measure the possible relationship between these variables (Gravetter & Forzano, 2006). In the current research the gastrointestinal symptoms (the dependent variable) were measured by creating three (3) groups, namely, an emetophobia disorder group, a panic disorder with agoraphobia group and an obsessive compulsive disorder group (the quasi-independent variable). The researcher then determined whether a possible relationship existed between the experience of a gastrointestinal symptom and the possibility of immediate vomiting and this relationship would be evident in the item mean scores and in the respondent mean scores from the three groups.

If a qualitative mode of inquiry was implemented this research would have focused on the deeper meaning which the respondents apply to their experience of these symptoms and the researcher may have asked individuals to write a story about these symptoms, their experience of these symptoms, how these symptoms developed, evolved and currently influence their way of life and possibly the way they function.

It is now sufficient to focus on the research aims and the methodological considerations, particularly, the population and the sample, the research strategy and design; the assessment instruments; the data collection procedure, how the data will be analysed and the issues related directly and indirectly to the reliability and to the validity of the current research study.

4.2 Research Aims

The focus is placed on emetophobia disorder respondents within the South African context and abroad (the United States of America and Great Britain), specifically, female respondents between the ages of twenty (20) and forty-five (45) years. The respondents presenting with panic disorder with agoraphobia and with obsessive compulsive disorder are included as baseline control groups. In the current research the foremost aim is to assess the respondents' subjective experience of gastrointestinal symptoms and their subjective association from the experience of these symptoms with the possible occurrence of immediate vomiting.

The following sub-aims are included in this study:

1. To determine whether a difference exist between the three (3) subgroups, a difference which has to be observable between the item mean scores and the respondent mean scores in the data from the assessment instruments.
2. To determine whether the respondents with emetophobia disorder are more prone to associate the experience of gastrointestinal symptoms with an increased possibility of vomiting.

A hypothesis is a specified testable expectation about empirical reality which follows from a more general proposition and needs to be stated in an unambiguous manner to be clearly testable (Babbie, 2005). The researcher hypothesised that the emetophobia disorder respondents would associate their experience of gastrointestinal symptoms with the possibility of immediate vomiting and this would be observably evident when the emetophobia disorder group displayed a significantly higher mean score in comparison to the panic disorder with agoraphobia group and to the obsessive compulsive disorder group.

4.3 Population and Sample

A population is the aggregation of elements from which the sample is actually selected and it is the entire set of individuals presenting with a specific disorder (Babbie, 2005). The population in the current research are all the individuals in the world presenting with emetophobia disorder, with panic disorder with agoraphobia and with obsessive compulsive disorder. A sample is a set of individuals selected from a statistical population by a defined procedure (Babbie, 2005). The sample consisted of individuals with emetophobia disorder, with panic disorder with agoraphobia and with obsessive compulsive disorder. The total sample size of the current research was sixty (60) respondents and there were twenty (20) respondents which formed part of three (3) subgroups. The sampling procedure, the sampling strategy, the sample description and the sample population will be discussed next.

4.3.1 Sampling

Sampling in the quantitative tradition is focused on the application of the findings beyond the research sample (Miles & Gilbert, 2005). Additionally, a sampling procedure refers to the

variety of ways to implement the procedure of selecting individuals to participate in the research study (Gravetter & Forzano, 2006). The sampling procedure in the current research was determined by the research aims and objectives. The researcher aimed to prove that the emetophobia group would display a higher association between their experience of gastrointestinal symptoms and the possibility of immediate vomiting. Thus, a higher association between the experience of gastrointestinal symptoms and the possibility of immediate vomiting will exist in the item mean scores and in the respondent mean scores from the questionnaires which was completed by the respondents with emetophobia disorder. These scores from the emetophobia disorder group were compared to the parallel association of these symptoms' item and respondent mean scores from the respondents with panic disorder with agoraphobia and from the respondents with obsessive compulsive disorder. The researcher had to locate the respondents presenting with emetophobia disorder, with panic disorder with agoraphobia and with obsessive compulsive disorder in order to obtain a representative sample. Thus, the sampling strategy needed to be adequate to ensure that the correct method is followed by the researcher in order to safeguard a dependable sample.

4.3.2 Sampling Strategy

The likelihood of the sample being representative depends on which sampling technique is used (Babbie, 2005). There are two types of sampling techniques, probability sampling and non-probability sampling. Probability sampling is not employed so often due to the fact that the researcher needs to know the exact size of the population and has to be able to list all the individuals which forms part of that population (Gravetter & Forzano, 2006). Therefore in the current research a non-probability quota sampling technique was employed to recruit the respondents (Babbie, 2005). A non-probability sampling technique refers to a method of

sampling characterised by an unequal chance of being selected to take part in the study (Terre Blanche & Durrheim, 2004). In non-probability sampling the researcher does not need to know the population size of the respondents presenting with emetophobia disorder, with panic disorder with agoraphobia or with obsessive compulsive disorder. The researcher was unable to recruit an adequate number of respondents from the clinical support groups and the researcher made use of the internet to obtain a larger sample.

In quota sampling the researcher identifies the subgroups (emetophobia disorder group, panic disorder with agoraphobia group and obsessive compulsive disorder group) to be included into the sample and establishes the quotas (20) for the respondents which were selected via convenience sampling for each subgroup (Gravetter & Forzano, 2006). The researcher imposed a restriction on the quota sampling method and for the purposes of this research the selection of the respondents was restricted to females between the ages of twenty (20) to forty-five (45) years.

A parameter is the value that describes some characteristic of the population, it is fixed, and a statistic is a value that describes some characteristic of the sample and it may vary from sample to sample (Plonsky, 2006). The parameter in the current research was that the respondents had to present with emetophobia disorder, with panic disorder with agoraphobia and with obsessive compulsive disorder. The statistic is the item- and the respondent mean score from the respondents' subjective rating on the assessment instruments. The data from the statistic is necessary to prove the hypothesis and to deduce the findings which will be set forth.

Therefore, the sample in the current research from which the data was derived is termed a non-representative explorative sample (Babbie, 2005). However, the researcher infers that the current respondents' symptoms and the features associated with their phobia correspond to the

features of other individuals that also present with emetophobia disorder, although they are not part of the current sample. Thus, the results obtained may then be generalised as to make inferences about other individuals with emetophobia disorder which forms part of the general population.

4.3.3 Sample Description and Population

The sample description for the current research is respondents presenting with emetophobia disorder, with panic disorder with agoraphobia and with obsessive compulsive disorder. The respondents were assessed and diagnosed in accordance with the criteria set forth in the DSM-V (American Psychiatric Association, 2013). The sample was restricted to females between the ages of twenty (20) to forty-five (45) years. The researcher successfully maintained over a two-year time period, sixty (60) respondents (previous inpatients and outpatients) to participate in each of the three (3) subgroups (an emetophobia disorder group, a panic disorder with agoraphobia group and an obsessive compulsive disorder group). The respondents presenting with emetophobia disorder may not have presented with any comorbid disorders, especially panic disorder with agoraphobia, obsessive compulsive disorder or any other phobia notorious for creating a heightened awareness or a greater focus on their gastrointestinal symptoms. Thus, the respondents selected for participation in the emetophobia disorder group required to be diagnosed with a single disorder. The necessity for individuals to be studied presenting with a principle diagnosis of emetophobia disorder was emphasised in the study by van Overveld et al. (2008) as this might possibly shed light on determining whether a subgroup of emetophobia exist. A number of the emetophobia disorder respondents presenting with a medical problem which may have caused gastrointestinal symptoms were excluded from the research as their medical problem may have had the opportunity to confound the results.

4.3.4 Sample Procedure

The target population is the groups defined by the researcher's specific interests (Gravetter & Forzano, 2006). The researcher's principal target population was individuals presenting with emetophobia disorder, however, individuals presenting with panic disorder with agoraphobia and with obsessive compulsive disorder were additionally subsumed in the target population. The reason for this inclusion was because the researcher required a baseline to compare the mean scores from the respondents' subjective responses of their personal experience of gastrointestinal symptoms.

A representative sample shares similar characteristics with the population (Gravetter & Forzano, 2006). In this current research a representative sample might be impossible to obtain as emetophobia disorder is a highly under researched area in the field of psychology (Boschen, 2007; Davidson et al., 2008; Lipsitz et al., 2001; Veale & Lambrou, 2006). However, the number of respondents who participated in the current research was adequate enough to endow the essential data necessary to assess the experience of gastrointestinal symptoms and the association of these symptoms with the possibility of immediate vomiting. The sample was recruited from clinical support groups and from an internet support group.

The research question related to the experience of gastrointestinal symptoms had to be adequately retorted by means of the assessment instruments imparted on the selected sample. It is useful to assume that these gastrointestinal symptoms may affect the populations of individuals presenting with emetophobia disorder located outside the scope of the study.

The aim of the research endeavour was to present data which rendered a heightened display of the emetophobia disorder respondents' association between their subjective experience of

gastrointestinal symptoms and the possibility of immediate vomiting. It was pertinent that the target population was accessible to the researcher or else the sample may not have represented the individuals displaying symptoms of emetophobia disorder which forms part of the entire population of individuals diagnosed with emetophobia disorder (Gravetter & Forzano, 2006). The researcher anticipated that problems might arise when selecting a sample, primarily due to the lack of research and due to the rarity of emetophobia disorder (Hunter & Anthony, 2009; van Overveld et al., 2008). Therefore, the researcher went about recruiting respondents via clinical support groups and online support groups. The clinical support groups were related to the George Neuro Clinic and the George Provincial Hospital. It is evident in the publication of Davidson et al. (2008) that the research respondents were recruited via a forum group which was based on the internet. The forum group Davidson et al. (2008) made use of was the Listerv internet forum group and this forum group hosts support groups for individuals with emetophobia disorder. The Listerv group requires individuals to email them with their personal story and if the story were deemed to be genuine the individual was permitted to join their online support group. Similarly, the current research recruited the respondents from the internet support group termed V-Phobia which is short for vomit phobia. A newsletter with the title of the current research and information about possible participation was posted on the information web page of the support group and the psychiatrists (2) in the United States of America whom assisted to gather the research respondents provided their personal email addresses along with the researcher's email address. The individuals with emetophobia disorder were informed of the current research endeavour and conceding that they would be willing to participate they were required to respond by sending an email to the researcher or to one of the psychiatrists. The psychiatrists forwarded the participation requests to the researcher or the researcher

independently received the participation request emails and responded accordingly. The informed consent form; the information form; the declaration and the three (3) assessment instruments (questionnaires) were attached and sent to the respondent. The respondent had to sign the consent form and complete the questionnaires and return these in due course to the researcher. Once the researcher received the established numeral of fully completed questionnaires to meet the quota (20) for each subgroup, the researcher was able to proceed and analyse the data with the assistance of a statistician.

4.4 Research Strategy and Design

A research strategy is a general approach to research and the research strategy is determined by the kind of questions the research study seeks to answer (Gravetter & Forzano, 2006). The non-experimental research strategy was applied in the current research in order for the researcher to make comparisons between pre-existing groups. The comparisons made in the current research were between the emetophobia disorder respondents, the panic disorder with agoraphobia respondents and the obsessive compulsive disorder respondents. The data obtained from the respondents' responses on the gastrointestinal symptom score (GIS, 2005) and the patient assessment of upper gastrointestinal symptom severity index (PAGI-SYM, 2004) were numerical values, allowing for numerical scores to be analysed and interpreted by means of the use of statistical procedures.

The focal objective was to determine whether the mean scores (item mean and respondent mean) derived from the assessment instruments (GIS and PAGI-SYM) would be consistently higher from the emetophobia disorder group when compared to the mean scores from the respondents

presenting with panic disorder with agoraphobia and the mean scores from the respondents presenting with obsessive compulsive disorder. Thus, the non-experimental research strategy was the most sufficient design to apply in order to assess these differences and this research strategy has higher external validity since the variables are assessed as they exist naturally within the individual. Further, the non-experimental research strategy does not attempt to explain the cause, this strategy attempts to show that a relationship between variables exist. Therefore the non-experimental research strategy was appropriate to ascertain whether a relationship between the experience of gastrointestinal symptoms and the thoughts of immediate vomiting would exist and consequently occur in the respondents with emetophobia disorder.

A research design is a general plan for implementing the research strategy (Gravetter & Forzano, 2006). The differential research design was employed in the current research study. The differential research design specifies whether the sample will consist of individual respondents or groups of respondents. In the current research this design compared pre-existing groups and the respondents were assigned to a certain subgroup which allowed the researcher to compare the results from the different subgroups and determine whether a difference existed between these groups. The treatment conditions were not manipulated and all of the respondents were assessed on equivalent questionnaires. This design specifies whether comparisons will be made between different groups or within the same group and this design specifies the number of variables to be included in the study (Gravetter & Forzano, 2006). Therefore, the design specified the first variable (pre-existing groups) and the respondents were routinely assigned to a certain group (emetophobia disorder, panic disorder with agoraphobia or obsessive compulsive disorder). Thereafter; measurements of the second variable were made within each group. This enabled the researcher to compare the results from one group with the results from another group. Thus, by

permitting the researcher to compare the results from the different subgroups the researcher was able to determine whether a difference existed in the data from the assessment instruments. These instruments were collectively employed to assess the respondents' association of experienced gastrointestinal symptoms and the relation of these symptoms with the possibility of immediate vomiting (Gravetter & Forzano, 2006). However, the differential research design does not exercise any of the rigors which exists in a true experimental design and therefore has low internal validity. All of the extraneous variables which exist may become confounding due to the fact that the researcher does not attempt to limit these by creating highly controlled conditions (Gravetter & Forzano, 2006).

In conclusion, the non-experimental research strategy and the differential research design is the most appropriate research strategy and research design for this study as it aims to assess the differences in the respondents' subjective ratings of their experience of gastrointestinal symptoms and the association of these symptoms' experience with the possibility of immediate vomiting.

4.5 Assessment Instruments

4.5.1 Overview

There were two key variables to examine in the current research. The first variable to assess was the quasi-independent variable particularly the respondents presenting with emetophobia disorder, with panic disorder with agoraphobia and with obsessive compulsive disorder. The second variable to assess was the dependent variable, specifically, the respondents' experience of gastrointestinal symptoms. The quasi-independent variable was defined and measured by the

criteria set forth in the DSM-V (American Psychiatric Association, 2013). The dependent variable was assessed by the gastrointestinal symptom score (GIS; 2005) and by the patient assessment of upper gastrointestinal symptom severity index (PAGI-SYM; 2004).

The constructs which were assessed by the GIS was defined analogously to the validation study by Adam et al. (2005) similarly the constructs measured by the PAGI-SYM was defined equivalently to the psychometric evaluation study of Rentz et al. (2004). The respondents were assessed on the GIS (2005), the PAGI-SYM (2004) and the self-developed questionnaire. The respondents had to subjectively rate the applicability of each question and these questions were related to their personal experience of gastrointestinal symptoms and the association of these symptoms with the possibility of immediate vomiting. Each respondent was instructed to rate each symptom on a Likert scale ranging from one (1) to five (5) (1 = no possibility, 2 = mild possibility, 3 = moderate possibility, 4 = severe possibility and 5 = very severe possibility). All of the terms were adequately defined. There was no form of deception present in this research. In addition, the researcher developed a questionnaire by extracting information from foregoing literature which already existed in the field of data related to emetophobia disorder. The self-report questions most valuable to this research were compiled from the data in Boschen's (2007) cognitive behavioural model of emetophobia. The GIS (2005), the PAGI-SYM (2004) and the self-developed questionnaire may be located in Appendix I-III (page 172-182) and was implemented for exploratory purposes.

4.5.2 The Gastrointestinal Symptom Score (GIS)

The gastrointestinal symptom score (GIS) was specifically developed for individuals with functional dyspepsia (indigestion). The main objective of the GIS is to assess the symptom intensities related to gastrointestinal symptoms (Adam et al., 2005). The item format of the GIS

(2005) includes nausea, vomiting, bloating, abdominal cramps, early satiety, acid eructation or heartburn, sickness, loss of appetite, retrosternal discomfort and epigastric or upper abdominal pain. Adam and colleagues developed the GIS and validated this instrument by conducting the necessary statistical tests which deemed this instrument "suitable for the quantification of symptom severity in clinical trials and for the standardised assessment of symptoms in the clinical setting" (Adam et al., 2005, p. 362). Furthermore, factor analysis identified four independent symptoms (nausea, early satiety, retrosternal discomfort and upper abdominal pain) and these symptoms are particularly relevant to emetophobia disorder.

Therefore the researcher concludes that this measure may be sufficient to assess the gastrointestinal symptoms which are experienced by the respondents with emetophobia disorder although the instrument was not standardised for this specific population or for a universal sample. The instrument was used in the same manner as Adam et al. (2005) and the respondents were asked to rate the possibility of immediate nausea occurring after their experience of a symptom on a five point likert scale ranging from one (1) to five (5) (1 = no possibility, 2 = mild possibility, 3 = moderate possibility, 4 = severe possibility and 5 = very severe possibility). Furthermore, the sum of the score ranges from zero (0) to fifty (50) points and a higher score represents a stronger association between the respondents' experience of that gastrointestinal symptom and their belief of the occurrence of immediate vomiting. The questionnaire is attached and may be located in Appendix I (page 172).

4.5.3 The Patient Assessment of Upper Gastrointestinal Symptom Severity Index (PAGI-SYM)

The respondents were correspondingly assessed on the patient assessment of upper gastrointestinal symptom severity index (PAGI-SYM; 2004). This instrument was developed for

patients with upper gastrointestinal disorders by Rentz et al. (2004) and the instrument was additionally developed for international use. The instrument was not developed specifically for emetophobia disorder or for the assessment of a universal sample; however, this instrument is deemed to be a valid predictor of gastrointestinal symptoms. Furthermore, two thirds (2/3) of the respondents whom were included in the validation study were female and the current research study solitarily assessed females.

The PAGI-SYM (2004) contains twenty (20) items, namely, heartburn, regurgitation or reflux, nausea, upper abdominal pain, stomach fullness, loss of appetite, upper abdominal discomfort, bloating, heartburn when lying down, lower abdominal pain, feeling of discomfort inside of the chest during the day, bitter taste in the mouth, lower abdominal discomfort, feeling of discomfort inside their chest at night, retching, stomach visibly larger, vomiting, unable to finish a normal size meal and feeling excessively full after meals.

These items were presented in six (6) subscales, namely, heartburn, nausea, early satiety, bloating, upper abdominal pain and lower abdominal pain. The total score of the PAGI-SYM (2004) is calculated by adding the score of each item and each item is rated on a likert scale. The likert scale ranges from one (1) to five (5) (1 = no possibility, 2 = mild possibility, 3 = moderate possibility, 4 = severe possibility and 5 = very severe possibility). Furthermore, the study by Rentz et al. (2004) placed a special focus on cultural adaptation and on identifying important gastrointestinal symptoms. The evidence necessary for validating the measure was collected from more than one thousand, seven hundred (1700) patients.

Therefore, the researcher posits that this instrument will suffice in measuring the severity of gastrointestinal symptoms in females with emetophobia disorder. The instrument was deemed to

be a valid measure of gastrointestinal symptoms internationally (United States, Germany, France, Italy, the Netherlands and Poland). The PAGI-SYM (2004) may be located in Appendix II (page 176).

4.5.4 The Self-Developed Questionnaire

Babbie (2005) presented techniques and guidelines to utilise in order to develop questionnaires. In the current research these guidelines were followed to develop a self-report assessment instrument. The main aim for compiling the self-developed questionnaire was to gather data which is generally related to and implicated in emetophobia disorder. Thus, the self-developed questionnaire was implemented for exploratory purposes due to the fact that emetophobia disorder is an insufficiently researched disorder. The data from which this questionnaire was collated are rendered in publications on emetophobia disorder (Boschen, 2007; Lipsitz et al., 2001; Veale and Lambrou, 2006). However, the self-developed questionnaire has not been validated or standardised for a specific population. The self-developed questionnaire subsumed of open-ended questions, yes and no responses and fixed answers in which the respondent has to rate the applicability of each answer on a five (5) point likert scale. This scale is a bipolar scaling method and the scale ranges from 1 (one) to 5 (five). The respondents had to rate the degree of possibility (1 = no possibility, 2 = mild possibility, 3 = moderate possibility, 4 = severe possibility and 5 = very severe possibility) they associated with vomiting. The self-developed questionnaire may be located in Appendix III (page 182).

4.5.5 Issues of Validity and Reliability

The researcher has to report valid and reliable data for the data to suffice. The data which is set forth has to answer the research question and the data might be utilised in future research studies pertaining to emetophobia disorder. The reliability of a measure refers to the consistency with

which it measures what it is intended to measure (Foxcroft & Roodt, 2005). Validity is concerned with what the instrument measures and how accurately the instrument measures the construct it was developed to measure (Foxcroft & Roodt, 2005).

The assessment instruments in the current research are not validated or standardised specifically for emetophobia disorder or for a South African, an American or a British population. The research endeavours on emetophobia disorder is presently lacking a standardised instrument. In addition, no research on a South African assessment instrument could be obtained (van Overveld et al., 2008). Previously researchers (Lipsitz et al., 2001; van Overveld et al., 2008; Veale & Lambrou, 2006) developed their own novel self-report questionnaires. Therefore, the researcher had to adapt and administer assessment instruments of gastrointestinal symptoms which were developed for other populations and additionally compile a self-developed questionnaire. The current research incorporated this self-developed questionnaire for exploratory purposes. The questionnaires may be located in Appendix I (page 172); Appendix II (page 176) and Appendix III (page 182).

4.6 Data Collection Procedure

The data collection procedure refers to the steps followed when obtaining the data. This data is necessary for testing the hypothesis and reaching conclusions (Babbie, 2005). A research site is the place where the research is conducted (McMillan & Schumacher 2001). The research sites for the current research were clinical support groups and an internet support group as the respondents were recruited from these settings.

The respondents were assessed on the assessment instruments which were integrated in this study. The assessment instrument was presented as a questionnaire and the respondents rated their subjective experience. A questionnaire is a document which contains questions designed to solicit information for analysis (Babbie, 2005). The questionnaires were rated on a likert scale ranging from one (1) to five (5).

The data source was the completed questionnaires and the information pertaining from the questionnaires were documented in the form of profile sheets. Lastly; the data collection plan entailed that all three (3) the subgroups should be assessed on identical assessment instruments.

4.6.1 Research Method

The sample respondents were divided into three (3) subgroups, namely, the emetophobia disorder group, the panic disorder with agoraphobia group and the obsessive compulsive disorder group. The GIS (2005), the PAGI-SYM (2004) and the self-developed questionnaire were the assessment instruments which were administered within all three (3) of the subgroups. Additionally, the three (3) subgroups were all assessed according to the criteria set forth in the DSM-V (2013) to ensure a diagnosis of either emetophobia disorder, panic disorder with agoraphobia or obsessive compulsive disorder (American Psychiatric Association, 2013). This research included a consent form and an additional information document to peruse. The consent form contained information about voluntary participation and the option to eschew from the study at any point in time. The information document stated the purpose, the limits and the possible benefits of the study. This research study additionally provided intelligible instructions on the method by which to complete the assessment instruments, as well as, the time-frame related to completion. The submitted feedback data for this research were verified to assess

whether the assessment instruments contained any omitted responses and if inerrant the requests to complete were conveyed.

4.6.2 Research Respondents

The respondents were female, they formed part of the tantamount age range and were concomitantly recruited from a clinical sample and from an internet sample. The sample was stringently matched for age and for gender.

The first group which was assessed was the emetophobia disorder group. The emetophobia disorder group consisted of twenty (20) female respondents between the ages of twenty (20) to forty-five (45) years. The entirety of the emetophobia disorder group respondents presented with a DSM-V (2013) diagnosis for emetophobia disorder, diversely defined as a specific phobia of vomiting and all of the respondents were recruited from an internet support group termed V-Phobia (American Psychiatric Association, 2013).

The second group which was assessed was the panic disorder with agoraphobia group. The panic disorder with agoraphobia group consisted of twenty (20) female respondents between the ages of twenty (20) to forty-five (45) years. The totality of the respondents in the panic disorder with agoraphobia group presented with a DSM-V (2013) diagnosis for panic disorder with agoraphobia and all of the respondents were recruited from a clinical support group or from an internet support group (American Psychiatric Association, 2013).

The third group which was assessed was the obsessive compulsive disorder group. The obsessive compulsive disorder group consisted of twenty (20) female respondents between the ages of twenty (20) to forty-five (45) years. The obsessive compulsive disorder group respondents all inclusively presented with a DSM-V (2013) diagnosis for obsessive compulsive

disorder and all of the respondents were recruited from a clinical support group or from an internet support group (American Psychiatric Association, 2013).

4.6.3 Research Procedure

4.6.3.1 Discussion

The role of the researcher is of implicit importance during the research procedure and the role which has to be assumed in the research study is constitutive considering that the feedback from the respondents will provide the data which is necessary for the researcher to set forth the results.

4.6.3.2 Role as the Researcher

The researcher remained ethical at all times and avoided harming the respondents in any manner. The ethical principles set forth by the University of South Africa were adhered to and these guidelines were implemented throughout the research study. The researcher received assistance from a research assistant to aid in the process of conducting the research and any risks or inconveniences which may have occurred during the course of the study were communicated and the manner these risks would have been dealt with was anticipated.

The respondents may be particularly prone to experience anxiety when they were assessed on the questionnaires, therefore, the researcher clearly motivated that participation was voluntary and if a respondent felt unable to continue she may have voluntarily excluded herself from the study. Furthermore, the respondents were free to ask the researcher any questions concerning the study and a telephone number and an email address were provided to them. The researcher laid pertinent emphasis on confidentiality and the results were kept safe at all times. The results were only seen by the researcher, the research assistant and the statistician for interpretation, scoring

and information assembling purposes. There was no need to provide any personal information and the questionnaires were organised by allocating a number to represent each respondent.

Lastly, the researcher attempted to remain as objective as possible in order to eliminate and minimise any demand characteristics. Demand characteristics may have been present if the respondents attempted to adapt their behaviour or their responses in order to satisfy the researcher and the results or the data which would have been set forth would have been inaccurate and confounded (Gravetter & Forzano, 2006). The aid of a research assistant may have contributed to minimising the potential demand characteristics to some extent.

4.6.3.3 Ethical Considerations

Whilst conducting the current research the ethical considerations were regarded. The American Psychiatric Association's (APA) (2002b) ethical guidelines propose that the respondents must be informed about the research and the possible dangers it might hold. These guidelines further state that the researcher must take every possible step to avoid the occurrence of emotional or physical harm. Furthermore, the identity of the respondents must be kept anonymous to be protected from any possible unwarranted scrutiny. The following steps were undertaken in order to adhere to the ethical guidelines. Firstly the respondents were presented with an information document and the respondents were informed about the nature of the study. Secondly the necessary instructions were communicated along with the importance of their responses. Thirdly the importance of the research and the role of the researcher were provided and the respondents were informed about their rights as a respondent especially their right to withdraw their data from the research at any point of time. Fourthly a consent form were provided to ensure that the respondents understood all of the aspects of the study especially the researcher's and the respondents' responsibilities. It was necessary to provide a clear description of the limitations of

the study together with the contact details of the researcher and the research assistant. This provided the respondents with the option to contact the researcher or the research assistant when they experienced anxiety due their participation in the current research study. Lastly debriefing sessions were available after the data collection in order to assess whether the respondents experienced any emotional distress during the period in which the study was conducted.

4.6.3.4 Procedure

The respondents were assessed via clinical support groups and an internet support group. The internet support group is termed V-Phobia and the psychologist who assumes the leading role in organising this support group posted the details of the current research online. The respondents which formed part of the current research read the notice of this research and the possibility to participate. The individuals were informed that they would assist in knowledge development and in data acquisition for emetophobia disorder. They were instructed to email their psychologist or the researcher in order to request information about the study and how they would be able to participate. The respondents came into contact with the researcher and the researcher sent an email containing information about the research and attached the assessment instruments for the respondents to complete. The respondents were requested to provide a letter from their psychiatrist or their psychologist elaborating on their disorder and they personally had to acknowledge that they have emetophobia disorder, panic disorder with agoraphobia or obsessive compulsive disorder. The researcher collected the data via email response and printed the assessment instruments.

The respondents which were assessed from the clinical support groups were contacted and assessed with the assistance of a research assistant. The respondents were greeted verbally and they were provided with the information linked to the study and to the assessment instruments

which they had to complete. The consent form and the information document were explained along with the instructions they had to charily follow. The respondents were provided with their questionnaire booklets. The questionnaires for each group were marked with a number and the respondents were told not to write any personal particulars or personal information on and in their booklets. The reason for the respondents to remain as anonymous as possible was that the respondents' identities had to be concealed in order to allow the researcher to eliminate any external confounding influences. The documents in each booklet contained all of the information which was presented to the respondents and may be viewed in Appendices I-VI (from page 172 to page 195).

The first measure the respondents were assessed on was the GIS (2005) which assess gastrointestinal symptoms, thereafter, they were assessed on the PAGI-SYM (2004) which assesses alternative gastrointestinal symptoms and for exploratory purposes the self-developed questionnaire recorded their subjective responses. The respondents were requested to complete all three (3) of the assessment instruments (questionnaires) in the booklet. They were instructed to hand their completed booklets to the research assistant once they had completed all of the questions. The research assistant ascertained whether the respondent completed the assessment instruments, thereafter the assistant inquired whether the respondent experienced any form of distress. A respondent who communicated distress and displayed symptoms of anxiety were without hesitation referred to a psychologist for assessment and treatment. There was no incentives offered to the respondents for their participation and there was no deception present.

The final step which was implemented in the research procedure was analysing the results. The researcher received assistance from a statistician in analysing the data and the data was presented

in the form of graphs and tables. This allowed the researcher to effortlessly compare the mean scores from the different groups derived from the data recorded by the questionnaires.

4.7 Data Analysis Method

Data analysis entails investigating the findings from a research study and reaching a conclusion by means of forming a statement (Babbie, 2005). Inductive reasoning entails using a relatively small set of observations as a basis for forming a general statement about a larger possible set of observations (Gravetter & Forzano, 2006). In his model Boschen (2007) stated that individuals with emetophobia disorder have a heightened somatisation vulnerability in which these individuals are more focused on their gastrointestinal symptoms. This heightened awareness of these symptoms in emetophobia disorder respondents is the feature which distinguishes such individuals from other specific phobias. Veale and Lambrou (2006) found that a majority of the individuals with emetophobia disorder attributed their experience of nausea to medical causes. In addition, Davidson et al. (2008) found a higher internal locus of control in respondents with emetophobia disorder. Thus, individuals with emetophobia disorder actively attempt to control their gastrointestinal symptoms.

Univariate analysis involves describing a case in terms of a single variable (Babbie, 2005). Univariate analysis demonstrated to be an adequate method in the current research and the focus was placed specifically on emetophobia disorder respondents. The variable under scrutiny was the emetophobia disorder respondents' experience of their gastrointestinal symptoms. Univariate analysis further involves comparing the subgroups' (emetophobia disorder group, panic disorder with agoraphobia group and obsessive compulsive disorder group) mean scores on their

subjective rating of their experience of gastrointestinal symptoms. The mean score differences for each group were finally compared.

In the non-experimental research design the data is analysed by comparing groups of scores and the comparisons of scores involves looking for mean differences (Gravetter & Forzano, 2006). After the data was collected it was analysed by calculating the mean, the mode, the median and the standard deviation. The mean is a measure of central tendency and it is the average of the scores divided by the sum of the scores (Plonsky, 2006). The mean from the data which was obtained from each subgroup (emetophobia disorder group, panic disorder with agoraphobia group and the obsessive compulsive disorder group) was calculated by summing the scores for each of these subgroups and then dividing the total score by the number of respondents within each subgroup. The median is the score which cuts the distribution in two halves (the middle score) and the mode is the most frequently occurring score (Plonsky, 2006). The median was calculated for each subgroup along with the mode. The standard deviation is a measure of dispersion around the mean. Dispersion may be defined as the distribution of values around the mean average. A lower standard deviation results in scores which are closer to the mean and a higher standard deviation results in scores which are spread more widely (Babbie, 2005). The standard deviation will allow the researcher to observe the amount of variability which exists in the data (Babbie, 2005).

Typically, when the researcher has to test their hypothesis they start off by forming a null hypothesis. The researcher forms a null hypothesis by stating that there is no relationship among the two variables under analyses. In the case of the current research the null hypothesis stated that there is no relationship between the experience of gastrointestinal symptoms and the respondents' association from these symptoms with the possible occurrence of immediate

vomiting. Thus, for the researcher to conclude that a statistically significant relationship exists between the two variables, the mean differences among the groups (emetophobia disorder group, panic disorder with agoraphobia group and obsessive compulsive disorder group) needs to be great enough that this difference could not have occurred by chance (Babbie, 2005; Gravetter & Forzano, 2006). If the researcher aspires to conclude that there is indeed a statistically significant relationship between these two variables it is fundamental to conduct a hypothesis test. Consequently, if the hypothesis test verified the hypothesis as significant the researcher thereupon may reject the null hypothesis (Babbie, 2005).

The necessary calculations were determined and the statistician proceeded by conducting a hypothesis test on the data. A single-factor analysis of variance (ANOVA) was implemented. An ANOVA is a hypothesis test which is applied to evaluate the mean differences among two or more separate subgroups when they are defined by separate values of the same variable (Gravetter & Forzano, 2006). The single ANOVA was sufficient to assess the different subgroups (emetophobia disorder group, panic disorder with agoraphobia group and the obsessive compulsive disorder group) on the dependent variable namely the gastrointestinal symptoms. The mean differences of each subgroup were evaluated by computing an F-ratio and by further consulting an F-distribution table. The F-distribution table was consulted in order to determine whether the F-ratio is large enough to be statistically significant (Gravetter & Forzano, 2006). The F-distribution table shows a minimum F-value of 3.88 is required to be regarded as statistically significant with an alpha level of 0.05. Following the single ANOVA and the calculation of the F-ratio, the statistician continued by measuring the effect size of the mean differences. The effect size was measured by computing the proportion of variance which exists within the mean differences (Gravetter & Forzano, 2006).

4.8 Reliability and Validity

The reliability of questions will entail questions to be designed and posed in such a way as to elicit a response that will support or refute the underlying component namely, the respondents' experience of gastrointestinal symptoms (Gravetter & Forzano, 2006). The respondents were assessed on their experience of gastrointestinal symptoms. Therefore; this research may be deemed reliable if the assessment questions from the instrument are in fact an accurate reflection, definition and measure of gastrointestinal symptoms and this assessment instrument will suffice to be used in another study to assess such symptoms (gastrointestinal symptoms).

Validity in general is concerned with the quality of the research study, the accuracy of the results and how accurately the research study answers the question it was intended to answer (Gravetter & Forzano, 2006). This current research may be deemed valid if it accurately answered that perceived gastrointestinal symptoms does in fact cause the respondents with emetophobia to believe that they are going to vomit immediately. A researcher may attempt to ensure the validity of the research study by thinking ahead and anticipating threats which may threaten the validity and in turn counteract these threats. It is essentially impossible to counteract all the existing threats to validity; therefore, the researcher considered the most important threats and attempted to limit these.

4.8.1 Internal Validity

The differential research design makes no attempt to control threats to internal validity and the main concern associated with internal validity is the interpretation of the results and any factor

which may raise doubts about the interpretation are considered to be a threat to internal validity (Gravetter & Forzano, 2006).

Different respondent characteristics such as race, socio-economic status, age, onset of disorder, duration of disorder and differing symptoms may influence the respondents during the course of the study, which indirectly affects the results obtained. These characteristics are all extraneous variables which exist naturally within the study and which may become confounding if it allows one to assume that the different participant characteristics may account for the differences in the scores obtained from the groups (Maree & van der Westhuizen 2009). A confounding variable is an unmonitored variable and allows for a different explanation for the results from the variable under investigation, specifically, the quasi-independent variable. In other words the differences found will not be due to the respondents' different subjective experiences of gastrointestinal symptoms, but due to the different participant characteristics of the respondents in the research study.

Variability may become a threat to internal validity due to the fact that a non-experimental research design was utilised. Variability would be evident if the researcher were to find a few emetophobia disorder respondents scored lower, in the middle and higher on the assessment instruments. This would be problematic because it does not allow for a noteworthy conclusion to be reached. However, in the current research the findings portrayed a collectively achieved high mean score for the respondents with emetophobia disorder on both the assessment instruments of gastrointestinal symptoms coalesced in this study.

Experimenter bias may have occurred if the differences in the scores observed between the three (3) groups were due to the experimenters influence (Babbie, 2005; Gravetter & Forzano, 2006).

The experimenter limited these by scripting the instructions and communicating these instructions accordingly. The experimenter ensured to limit any personal contact with the respondents as much as possible. The experimenter hired an external assessor to assist in assessing the questionnaires and the experimenter only acted as a bystander, this is known as single blind research. In single blind research the external assessors or the assistants does not know the expected results of the research study. Demand characteristics and reactivity could have occurred if the results obtained by the study were influenced by the respondents' reactivity and not their subjective experience of gastrointestinal symptoms. The aforementioned threat to internal validity was reduced by attempting to conceal the true purpose of the research study know as face validity (Gravetter & Forzano, 2006).

Another threat to internal validity may be differential effects such as history effects. History effects may become confounding because any difference observed between the three (3) groups may be accounted for by their different histories (Gravetter & Forzano, 2006). Other time related threats to internal validity include maturation, instrumentation, testing effects and regression. Maturation may become confounding if one group is older than the other group (Gravetter & Forzano, 2006). Instrumentation may occur if the instrument used to assess the different groups wear out and provides different scores for the different groups. Testing effects occurs when the groups has to be tested in a few conditions and may acquire some learning from the previous condition which may influence their measurements on the conditions to follow (allowing for different scores as opposed to just being tested once). Testing effects will not become a confounding variable because all of the respondents completed the same questionnaire at a single time and they were not exposed to more than one treatment condition. Lastly, regression is jointly a threat to internal validity. Regression occurs when an individual is

supplementary tested on the same measure and obtains a higher score on the following measurement. In the current research regression did not occur because all the respondents were assessed at a single time (Gravetter & Forzano, 2006).

The main threat in terms of the differential research strategy for internal validity is referred to as assignment bias. Assignment bias occurs when the researcher has no assurance that the groups examined hold the same respondent characteristics because random assignment is not used and the groups are pre-existing and non-equivalent. This makes concessions for an alternative explanation for any of the differences observed between the groups (Gravetter & Forzano, 2006). Therefore, assignment bias may occur when the process used to assign the respondents to the different groups produces groups with noticeably different characteristics. The researcher may answer the research question and indeed find a higher gastrointestinal symptom score for the emetophobia disorder respondents when compared to the panic disorder with agoraphobia group and to the obsessive compulsive disorder group. However, the difference may be imputed for by individual differences and not the fact that the emetophobia disorder group respondents experience a higher proportion of gastrointestinal symptoms. The threat of assignment bias is somewhat minimised (although it may exist and influence scores) because the objective was to create different groups.

An attempt to limit the confounding influence of respondent characteristics, due to assignment bias, would be to match, control and restrict some of these characteristics. Matching entails assigning individuals to groups so that a specific variable is balanced across conditions (Babbie, 2005). The researcher carefully decides which variables to match, as matching is typically used for a variable judged to have a strong potential of becoming a confounding variable. In the light of the following results the variable which was matched was gender (Boschen, 2007; Davidson

et al., 2008; Hunter & Anthony, 2009; Lipsitz et al., 2001; Veale & Lambrou, 2006). The socio-economic status of the respondents should not influence their experience of gastrointestinal symptoms and the age range was restricted which reduced the number of participant characteristics as these may have become a confounding variable. When a researcher restricts the age range individuals amidst certain ages are allowed to participate in the study, this restriction conduced to minimise the variability in scores (Gravetter & Forzano, 2006). The variability which may exist in the scores of the respondents is problematic when there is a commodious difference between the individual respondent scores. Therefore, the age range for the female respondents was restricted by allowing females between the ages of twenty (20) to forty-five (45) years to participate.

Differential effects' confounding influence was limited where possible. It would be optimistic to assume that history effects will not exert such a confounding influence within each group due to the fact that all three (3) of the group's respondents presented with a disorder of some kind, however; differing histories might be problematic when comparing the mean scores between the groups. A respondent with emetophobia disorder may have a different history when compared to a respondent with panic disorder with agoraphobia. Cohort effects were minimised by focusing on females who formed part of the same age group. Cohort effects refer to differences between age groups caused by the unique characteristics of the respondents or their experiences other than their difference in age (Babbie, 2005).

Additional threats to internal validity may occur when a respondent has a medical condition co-occurring with her disorder and the side effects of the medical condition cause her to experience gastrointestinal symptoms. The threat of possible side effects was minimised by not allowing

respondents whom presented with a medical condition which may cause any form of gastrointestinal symptoms to participate in the current research study.

Furthermore, an extraneous variable which may turn into a confounding variable may be a virus in the air such as gastro. The respondent may have been infected a week before the assessment date and they respond that they experience a higher proportion of gastrointestinal symptoms, however these symptoms are veritably an experience of the side effects from the gastro virus and not a somatisation symptom (gastrointestinal symptoms) which is a feature of emetophobia disorder.

The key to achieving high internal validity is to ensure that an extraneous variable does not become a confounding variable (Maree & van der Westhuizen, 2009). In the current research study this objective would be ensured if the onliest difference between the three (3) groups (emetophobia disorder group, panic disorder with agoraphobia group and the obsessive compulsive disorder group) being assessed is the disorder with which these individuals present (emetophobia disorder, panic disorder with agoraphobia and obsessive compulsive disorder).

Another threat to the internal validity of the results is known as researcher bias and this may be presented when a researcher does not record the aggregate of the results should the findings fail to suggest the desired causatum which the researcher sought to prove. Another example of researcher bias may occur in the current research if the researcher has a particular ascendancy on the respondents and the respondents may adapt their responses on the questionnaires accordingly.

It might be possible to assume that the similarities of the respondents positively contributed to the internal validity of the results. All of the respondents were female and they betwixt the same

age range, therefore these similarities limited the potential of an alternative explanation and interpretation of the results.

The next section will focus on external validity. It was vital for the researcher to generalise the results. The results may then form part of future endeavours seeking to appetent and assess emetophobia disorder.

4.8.2 External Validity

An alternative factor which is a worriment for the researcher is that of external validity. External validity is the extent to which the results obtained in a research study holds true outside the constraints of that study (Maree & van der Westhuizen, 2009).

Every research study is unique with regards to the research question, the sample, the assessment instruments and the results obtained. However, the objective is to be able to generalise the results beyond the research study to other individuals with emetophobia disorder or to other settings which are external to the perimeters of the study (Gravetter & Forzano, 2006). Hout and Bouman (2006) in an unpublished manuscript titled: "clinical features of emetophobia: prevalence and comorbidity" found prevalence rates ranging from six (6) to seven (7) percent of females diagnosed with emetophobia disorder (as cited by Hunter & Anthony, 2009). Appertaining to these rates emetophobia disorder may affect numerous individuals and the researcher insists that the results would want to be generalised to other populations.

There are however some complications which may arise in light of generalising the results beyond the scope of the study. Specifically three (3) types of generalisations have a relation to external validity. Generalisations from a sample to a specific population; generalisations from

one research study to another and generalisations from a research study to a real world situation (Gravetter & Forzano, 2006).

In order for the researcher to be able to generalise the results from a sample to a specific population the sample is required to be characteristically representative. In the case of the current research the sample of respondents (presenting with emetophobia disorder, panic disorder with agoraphobia and obsessive compulsive disorder) had to represent the specific characteristics of the population from which they derive (that includes all the individuals presenting with emetophobia disorder, with panic disorder with agoraphobia and with obsessive compulsive disorder) in order for the sample to be deemed representative (Gravetter & Forzano, 2006).

The researcher attempted to ensure characteristic representativeness by exclusively including respondents diagnosed with emetophobia disorder, panic disorder with agoraphobia and obsessive compulsive disorder according to the criteria set forth in the DSM-V (American Psychiatric Association, 2013). By including respondents whom met this criterion the characteristic representativeness may be enhanced and generalisations may currently suffice.

Generalising from one research study to another may be ensured if the researcher describes the method employed in great detail and specifies the criteria used to select respondents along with a clear description of the aim and the research question (Gravetter & Forzano, 2006). The researcher attempted to be very specific and provided a clear description of the current research study to ensure another endeavour seeking to explore emetophobia disorder in the future assessing an unrelated sample may do so and obtain similar results related to the experience of gastrointestinal symptoms.

The final concern related to the external validity of the results is the extent to which the results obtained under controlled conditions may be generalised to a real world situation. It is not possible for the respondents to partake in the current study and be ignorant of the fact that they are being assessed on a number of aspects for the reason that the researcher sought to obtain subjective responses which were analysed to reach a conclusion.

The researcher will moil to warrant that the results of the particular study may be generalised to a real world situation by communicating to the respondents to be as honest as possible when they answer the questionnaires. In addition, the researcher requested from the respondents not to direct attention to the fact that they are part of a study because ultimately the feedback they provide will contribute to reach conclusions and may assist other individuals presenting with the same disorder whom did not form part of the current study.

The external validity of the current research was restricted and the results may uniquely be applied to female respondents between the ages of twenty (20) to forty-five (45) years and these females has to be diagnosed with emetophobia disorder, panic disorder with agoraphobia and obsessive compulsive disorder. The decision for restricting age, gender and diagnosis were based primarily on previous research which demonstrated that females are more apt to developing emetophobia disorder and the features of emetophobia disorder overlaps uttermost with the features of panic disorder with agoraphobia and with obsessive compulsive disorder (Davidson et al., 2008; Lipsitz et al., 2001; Veale & Lambrou, 2006).

Another threat to the external validity of the results may be the possible representation of researcher bias (Gravetter & Forzano, 2006). The respondents may be influenced by the researcher to respond and provide feedback which they surmise the researcher seeks to find.

Furthermore, the researcher may conjointly withhold data or findings by not publishing the information procured as the information or the data which was acquired does not correspond to the original hypothesis.

In conclusion, concerning this research endeavour the findings may be generalised and will hold great value for treatment initiatives if Boschen's (2007) proposed cognitive behavioural model of emetophobia disorder may be partially supported and initiated to guide treatment.

4.9 Summary

In this chapter the research aims, the population and sample, the research strategy and design, the assessment instruments, the data collection and procedure, the data analysis and the reliability and validity of the assessment instruments and the research study were discussed. In the following chapter the research results will follow.

CHAPTER 5

RESULTS

5.1 Introduction

The sample population consisted of sixty (60) respondents and the respondents formed part of three (3) groups. The inclusion criteria for each group was to present with either emetophobia disorder, panic disorder with agoraphobia or obsessive compulsive disorder and carry a diagnosis as is specified in the DSM-V (American Psychiatric Association, 2013). There are twenty (20) respondents in each subgroup and the target population are individuals with emetophobia disorder. The baseline for comparison was panic disorder with agoraphobia respondents and obsessive compulsive disorder respondents. The respondents were all accessed via clinical support groups and an online support group.

There are three (3) assessment instruments utilised in the current research. The first assessment instrument is the gastrointestinal symptom score (GIS) (Adam et al., 2005). This assessment instrument assessed and measured the severity of gastrointestinal symptoms in all of the respondents. The second assessment instrument was the patient assessment of upper gastrointestinal symptom severity index (PAGI-SYM) (Rentz et al., 2004). This assessment instrument likewise assessed subjective gastrointestinal symptoms. The PAGI-SYM (2004) was incorporated as an additional assessment instrument for the assessment of gastrointestinal symptoms.

The third assessment instrument was a self-report assessment instrument compiled by the researcher. This instrument assessed the subjective responses which provided an exploratory

aspect. The respondents were motivated to communicate their experience of emetophobia disorder, panic disorder with agoraphobia and obsessive compulsive disorder. The self-developed questionnaire incorporated many open-ended questions which allowed for an in-depth explanation and feedback from the respondents. This narrative approach supports the theory of social constructivism's basic premise (Jordaan, 2009). The basic premise is that an individual's reality is constructed subjectively and that meaning is derived from their constructed reality and communicated via language. The feedback received from the individuals is meaningful because a subjective discussion and an explanation was recorded which communicated their personal reality and the way they felt best to deal with their daily impediments.

5.2 Demographic Outcomes

The samples respondents were 100% female and totalled to a sample size of sixty (60) respondents. The female respondents ranged in age from twenty (20) to forty-five (45) years. One third (20) of the sample was diagnosed with emetophobia disorder; another third (20) was diagnosed with panic disorder with agoraphobia and the remaining third (20) was diagnosed with obsessive compulsive disorder. The countries of residence for the respondents are the Republic of South Africa, the United States of America and Great Britain.

The female respondents were not asked to specify their exact age, however, the respondents were informed on the consent form that they had to be in the age range between twenty (20) and forty-five (45) years. Therefore, the slight differences in the mean age of each group might have been too small to have had the possibility to confound the results. The age gap is not too significant and the gender of females was matched by exclusively allowing females to participate, thus; the

delimiter in the current research was set by distinctively allowing females to participate. The restriction of the sample to females was necessary due to the fact that the disorder of emetophobia is over represented in females. This over representativeness was conveyed in the studies by Lipsitz et al. (2001) and Veale and Lambrou (2006). The respondent demographics of the three (3) groups are shown in table 5.1 below. The results obtained from the assessment instruments will be discussed thereafter.

Table 5.1 Demographic data of the sample.

SEX	
Females	100%
AGE	
Years	20-45
DISORDER	
Emetophobia Disorder	33.3%
Panic Disorder with Agoraphobia	33.3%
Obsessive Compulsive Disorder	33.3%

5.3 The Self-Report Assessment Instrument Outcomes

The inclusion criterion to be assigned to either the emetophobia disorder group; the panic disorder with agoraphobia group or the obsessive compulsive disorder group was based on the criteria set forth in the DSM-V (2013), and accordingly assessed and confirmed by psychologists and psychiatrists (American Psychiatric Association, 2013). The respondents were assessed on the GIS (2005), the PAGI-SYM (2004) and the self-developed questionnaire, and the method of accumulating data was in the form of questionnaires. The respondents completed all three (3) of the questionnaires in approximately thirty (30) to forty (40) minutes. The researcher and the research assistant collected the questionnaires and ensured that the questionnaires were completed and that all the questions were answered. The purpose of the research endeavour was to set forth results displaying a higher score on these assessment instruments: the GIS (2005); the PAGI-SYM (2004) and the self-developed questionnaire by the emetophobia disorder group

when compared to the panic disorder with agoraphobia group and to the obsessive compulsive disorder group. A statistically significant result entails that the results obtained has to be due to the differences in the scores from the respondents' experience of gastrointestinal symptoms and that the differences obtained is pertinent enough that it could not have been ensued by chance (Gravetter & Forzano, 2006).

The data which were collected was analysed by computing the total score for each respondent and for each item set forth in the questionnaires and thereafter these scores were added to derive the item mean scores and the respondent mean scores for each group. The data was further assessed by studying and comparing the item mean scores and the respondent mean scores from the three (3) groups on the assessment instruments (GIS (2005), PAGI-SYM (2004) and the self-developed questionnaire). The mean scores from the respondents' subjective ratings showed that there existed a difference in the total item mean score and in the total respondent mean score from the emetophobia disorder group when compared to the mean scores from the panic disorder with agoraphobia group and from the obsessive compulsive disorder group.

The data was further analysed by a statistician and the statistician ensured the necessary analysis by conducting a hypothesis test known as an analysis of variance (ANOVA). The ANOVA provided the sum of squares (ss); the degree of freedom (df); the mean square (ms); the f-statistic and the *p*-value. The *p*-value has to display a score of less than 0.05 for the comparison of the results between the groups to be concluded as statistically significant. The f-ratio was computed and the f-value had to display a score above 3.88 with an alpha level above 0.05. In the following section an in-depth discussion of the data will be accorded along with the item mean scores and the respondent mean scores which were derived from the assessment instruments.

Lastly, the *p*-value (statistical significance) which was calculated by the ANOVA will be interpreted and conclusions will be drawn.

5.3.1 The Gastrointestinal Symptom Score

The respondents were asked to rate their subjective experience of gastrointestinal symptoms on a likert scale ranging from one (1) to five (5); one (1 = being no possibility), two (2 = being a mild possibility), three (3 = being a moderate possibility), four (4 = being a severe possibility) and five (5 = being a very severe possibility). They were specifically asked to rate the possibility of immediate vomiting to occur when they experience different gastrointestinal symptoms. The item mean scores and the respondent mean scores on the GIS (2005) by the three (3) groups: emetophobia disorder (E), panic disorder with agoraphobia (PDA) and obsessive compulsive disorder (OCD) may be located in table 5.2 (page 122) and in table 5.3 (page 123) below. The mean score for the total respondents were calculated on a single item and the mean score for a single respondent was calculated for all of the items. These symptoms' scores concluded that a difference was found between the mean scores (item and respondent) from the three (3) groups.

Table 5.2 Item mean scores on the GIS (2005).

GIS-Items	E (n = 20)	PDA (n = 20)	OCD (n = 20)
Nausea	4.3	3.15	3.45
Vomiting	4.55	3.15	3.6
Bloating	3.1	2.6	3.1
Abdominal Cramps	3.3	2.7	3.1
Early Satiety	3.35	2.5	2.8
Acid Eructation	3.05	2.65	2.8
Sickness	4.55	3.1	3.65
Loss of Appetite	2.7	2.1	2.8
Retrosternal Discomfort	3.0	2.5	2.3
Epigastric Pain	3.1	2.8	2.7
Mean Item Score	70	54.5	60.6
Total Item Score	700	545	606

Table 5.3 Respondent mean scores on the GIS (2005).

Respondents	E (n = 20)	PDA (n = 20)	OCD (n = 20)
Respondent 1	4.6	2.5	2.8
Respondent 2	3.8	3.0	3.4
Respondent 3	4	2.8	3.4
Respondent 4	4.8	2.9	2.9
Respondent 5	4.4	2.9	2.6
Respondent 6	2.9	2.7	3.0
Respondent 7	3.5	3.2	3.3
Respondent 8	3.6	2.9	3.5
Respondent 9	2.8	2.5	3.7
Respondent 10	3.0	3.0	2.3
Respondent 11	4.1	3.1	3.6
Respondent 12	2.8	3.1	2.1
Respondent 13	3.5	2.4	2.4
Respondent 14	3.9	2.0	3.7
Respondent 15	3.3	2.8	3.1
Respondent 16	3.3	2.5	3.1
Respondent 17	3.3	2.3	3.1
Respondent 18	2.6	3.2	2.0
Respondent 19	2.7	1.6	3.3
Respondent 20	3.1	3.1	3.3
Mean Score	35	27.25	30.3
Total Score	700	545	606

The mean score for the emetophobia disorder group respondents on the item nausea was high (4.3); the item mean score for vomiting was slightly higher (4.55) and the item mean score for sickness was just as high (4.55). These mean score ratings are a score out of 5. The panic disorder with agoraphobia group scored much lower in their item mean score on the item of nausea (3.15); the item mean score on vomiting (3.15) and the item mean score on sickness (3.1). The obsessive compulsive disorder group scored slightly lower in their item mean score on nausea (3.45); their item mean score on vomiting (3.6) and their item mean score on sickness (3.65). These three items were the items which displayed the highest fluctuations of the scores in comparison to the mean scores of the other items.

The symptom items of abdominal cramps (3.3) and early satiety (3.35) conveyed mean scores displaying a moderate association to a severe possibility of vomiting in the respondents with emetophobia disorder. The panic disorder with agoraphobia group displayed a moderate item mean score association between abdominal cramps (2.7) and early satiety (2.5) related to vomiting. The obsessive compulsive disorder group respondents showed a lower item mean score on their associations of abdominal cramps (3.1) and early satiety (2.8).

On the last four items acid eructation or heartburn (3.05); loss of appetite (2.7); retrosternal discomfort (3.0) and epigastric or upper abdominal pain (3.1) the emetophobia group scored higher on all four of these items' mean scores when compared to the panic disorder with agoraphobia group: acid eructation or heartburn (2.65); loss of appetite (2.1); retrosternal discomfort (2.5) and epigastric or upper abdominal pain (2.8). The obsessive compulsive disorder group displayed the following item mean scores: acid eructation or heartburn (2.8); loss of appetite (2.8); retrosternal discomfort (2.3) and epigastric or upper abdominal pain (2.7). Once again it is evident that the respondents with emetophobia disorder scored higher on the last four items of the GIS (2005).

The respondent mean scores displayed the following results: respondent one (4.6); respondent two (3.8); respondent three (4); respondent four (4.8) and respondent five (4.4) from the emetophobia disorder group scored the highest on the GIS (2005) in comparison to the panic disorder with agoraphobia group and the obsessive compulsive disorder group. Respondent six (3.0) from the obsessive compulsive disorder group; respondent seven (3.5) and respondent eight (3.6) from the emetophobia disorder group scored the highest on the GIS (2005). Thereafter, respondent nine (3.7) from the obsessive compulsive disorder group scored and respondent number ten (3.0) from both the emetophobia disorder group and the panic disorder with

agoraphobia group scored the highest on the GIS (2005). Respondent eleven (4.1) from the emetophobia disorder group and respondent twelve (3.1) from the panic disorder with agoraphobia group scored the highest on the GIS (2005). Respondent thirteen (3.5); respondent fourteen (3.9); respondent fifteen (3.3); respondent sixteen (3.3) and respondent seventeen (3.3) from the emetophobia disorder group scored the highest on the GIS (2005). Respondent eighteen from the panic disorder group with agoraphobia scored the highest (3.2) on the GIS (2005). In conclusion, the last two respondents; respondent nineteen (3.3) and respondent twenty (3.3) from the obsessive compulsive disorder group scored the highest on the GIS (2005).

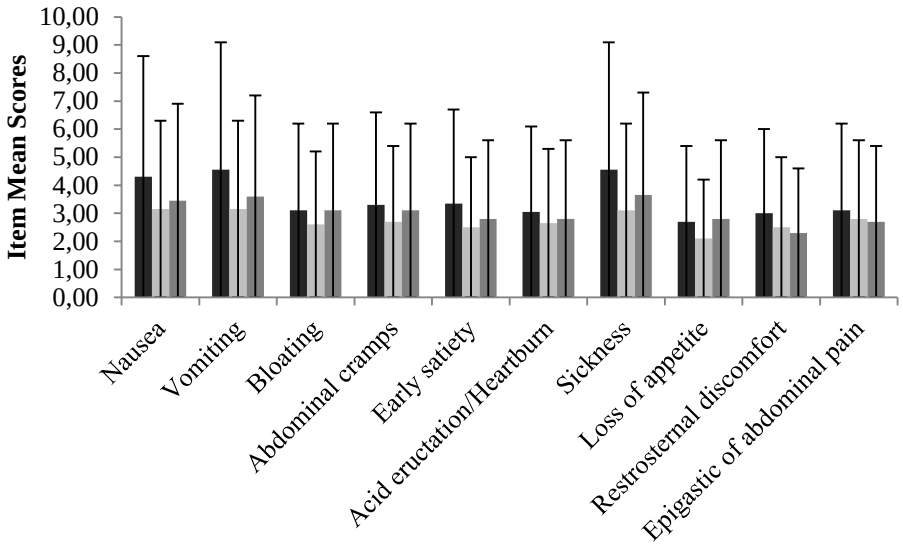
Thus, the hypothesis remained unrefuted and the majority of the emetophobia disorder respondents' mean scores on the GIS (2005) indicated that the emetophobia disorder group did indeed score consistently higher in comparison to the two baseline control groups on the majority of the items assessing gastrointestinal symptoms.

The data which was collected showed that the respondents with emetophobia disorder were acutely focused on their gastrointestinal symptoms and they associated almost eighty-five percent (85%) to ninety percent (90%) of their gastrointestinal symptoms such as vomiting (4.55); sickness (4.55) and nausea (4.3) with a very severe possibility of vomiting. Furthermore, more than two thirds (2/3) reported that these symptoms (nausea; vomiting and sickness) are the main symptoms associated with a very severe possibility of vomiting.

A histogram (graph 5.1 and graph 5.2) displaying the mean scores of each item and for each respondent allows for a comparison to be made between the item mean scores and the respondent mean scores from the emetophobia disorder group, the panic disorder with agoraphobia group

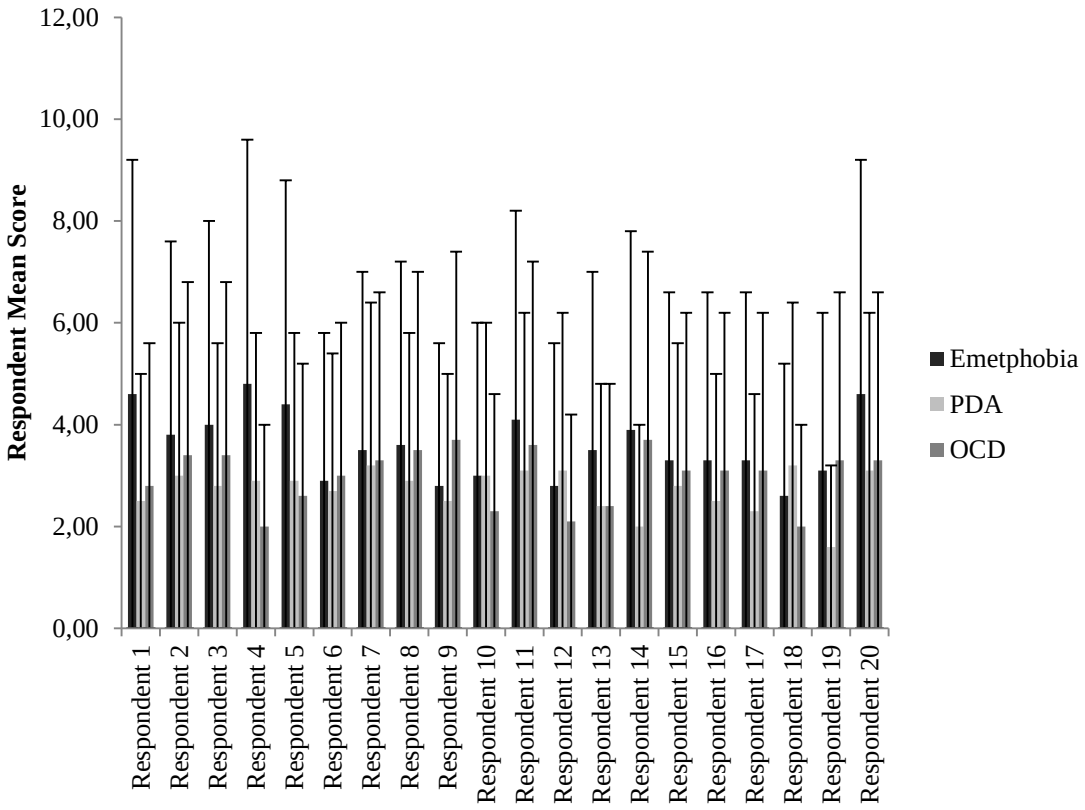
and the obsessive compulsive disorder group. The graphs are numbered graph 5.1 (page 126) and graph 5.2 (page 127) below.

ITEM MEAN SCORES ON THE GIS (2005).



Graph 5.1 Item mean scores on the GIS (2005).

RESPONDENT'S MEAN SCORES ON THE GIS (2005).



Graph 5.2 Respondent's mean scores on the GIS (2005).

After the three (3) groups' item mean scores and respondent mean scores were compared on the frequency polygon and on the histogram the data suggested that the majority of the emetophobia disorder group did associate their experience of gastrointestinal symptoms with the possibility of immediate vomiting. This is evident in the mean average scores (item and respondent) which are displayed above the panic disorder with agoraphobia group and above the obsessive compulsive disorder group. The panic disorder with agoraphobia group respondents' mean item scores portray an overall moderate score on the association between gastrointestinal symptoms and the possibility of vomiting as did the obsessive compulsive disorder group. In the emetophobia

disorder group special relevance or an association was made to the following three (3) symptoms: vomiting (4.55); nausea (4.3) and sickness (4.55).

Lastly, an ANOVA was apt to assess all ten (10) of the symptom items of the GIS (2005). The data set forth by the ANOVA had to be less than 0.05 for the difference which existed between the three groups on a specific item to be regarded as statistically significant. The findings were as follows: nausea (0.06); vomiting (0.01); bloating (0.296); abdominal cramps (0.265); early satiety (0.034); acid eructation (0.512); sickness (0.000); loss of appetite (0.091); retrosternal discomfort (0.141) and epigastric or abdominal pain (0.504). The ANOVA showed statistically significant results for the items of vomiting (0.001); early satiety (0.034) and sickness (0.000) between the three (3) groups and may be viewed in table 5.4 below.

Table 5.4 A Single Analysis of Variance for the GIS (2005).

GIS-Items	Comparison of Scores	*P*-Value (<0.05)
Nausea	Between groups	0.060
Vomiting	Between groups	0.010
Bloating	Between groups	0.296
Abdominal Cramps	Between groups	0.265
Early Satiety	Between groups	0.034
Acid Eructation	Between groups	0.512
Sickness	Between groups	0.000
Loss of Appetite	Between groups	0.091
Retrosternal Discomfort	Between groups	0.141
Epigastric Pain	Between groups	0.504

5.3.2 The Patient Assessment of Upper Gastrointestinal Symptom Severity Index

The respondents were asked to rate their subjective experience of gastrointestinal symptoms on a likert scale ranging from one (1) to five (5); one (1 = being no possibility), two (2 = being a mild possibility), three (3 = being a moderate possibility), four (4 = being a severe possibility) and five (5 = being a very severe possibility). They were specifically asked to rate the possibility of

the occurrence of immediate vomiting when they experienced the specific gastrointestinal symptom.

These symptoms are heartburn, regurgitation or reflux, nausea, upper abdominal pain, stomach fullness, loss of appetite, upper abdominal discomfort, bloating, heartburn when lying down, regurgitation or reflux when lying down, lower abdominal pain, feeling of discomfort in your chest during the day, bitter, acid or sour taste in your mouth, lower abdominal discomfort, feeling of discomfort in your chest at night, retching, stomach or belly visibly larger, vomiting, not able to finish a normal sized meal and feeling excessively full after meals. An observable difference was found between the three (3) groups: emetophobia disorder (E); panic disorder with agoraphobia (PDA) and obsessive compulsive disorder (OCD) as is evident in table 5.5 (page 129) and in table 5.6 (page 130) below.

Table 5.5 Item mean scores on the PAGI-SYM (2004).

PAGI-SYM-Items	E (n = 20)	PDA (n = 20)	OCD (n = 20)
Heartburn	2.6	2.3	2.7
Regurgitation	3.7	3.0	3.3
Nausea	4.75	3.4	3.5
Upper abdomen pain	3.2	3.15	2.6
Stomach fullness	3.0	3.1	2.95
Loss of appetite	2.75	2.5	2.45
Upper abdominal	3.3	2.9	2.6
Bloating	2.8	2.9	3.0
Heartburn (down)	3.15	2.35	2.6
Regurgitation (down)	3.8	3.05	2.95
Lower abdomen pain	2.9	1.7	2.4
Feeling chest (d)	2.2	2.05	2.25
Bitter taste	2.75	2.55	2.85
Lower abdominal	2.8	1.7	2.0
Feeling chest (n)	2.5	1.6	2.1
Retching	4.75	3.05	3.35
Stomach larger	2.45	3.1	2.55
Vomiting	4.7	3.25	3.45
Not finish meal	2.7	2.55	2.4
Excessively full	3.4	2.7	2.9
Mean Item Score	64.2	52.9	54.9

Total Mean Score	1284	1058	1098

Table 5.6 Respondent mean scores on the PAGI-SYM (2004).

Respondents	E (n = 20)	PDA (n = 20)	OCD (n = 20)
Respondent 1	4.0	2.8	3.05
Respondent 2	3.55	3.05	2.7
Respondent 3	3.85	2.9	3.35
Respondent 4	4.75	2.55	2.8
Respondent 5	4.2	3.0	3.2
Respondent 6	2.55	3.2	2.95
Respondent 7	3.45	2.85	2.15
Respondent 8	3.5	3.0	2.45
Respondent 9	2.45	2.65	2.4
Respondent 10	2.7	3.35	2.35
Respondent 11	2.5	2.55	2.75
Respondent 12	2.55	2.75	2.95
Respondent 13	3.25	2.5	2.95
Respondent 14	3.55	1.8	3.05
Respondent 15	2.35	2.55	2.75
Respondent 16	3.25	2.5	3.1
Respondent 17	3.25	2.2	3.0
Respondent 18	2.7	2.55	2.1
Respondent 19	2.9	2.15	2.5
Respondent 20	2.9	2.0	2.35
Mean Score	64.2	52.9	54.9
Total Score	1284	1058	1098

The emetophobia disorder group did associate their experience of gastrointestinal symptoms with the possibility of immediate vomiting as was evident in their item mean scores on the PAGI-SYM (2004). The emetophobia group's item mean scores were as follow: heartburn (2.6); regurgitation or reflux (3.7); nausea (4.75); upper abdominal pain (3.2); stomach fullness (3.0); loss of appetite (2.75); upper abdominal discomfort (3.3); bloating (2.8); heartburn when lying down (3.15); regurgitation or reflux when lying down (3.8); lower abdominal pain (2.9); feeling of discomfort in your chest during the day (2.2); bitter, acid or sour taste in your mouth (2.75); lower abdominal discomfort (2.8); feeling of discomfort in your chest at night (2.2); retching

(4.75); stomach or belly visibly larger (2.45); vomiting (4.7); not able to finish a normal sized meal (2.7) and feeling excessively full after meals (3.4).

The panic disorder with agoraphobia group showed a moderate association with the possibility of immediate vomiting and their group's item mean scores were as follow: heartburn (2.3); regurgitation or reflux (3.0); nausea (3.4); upper abdominal pain (3.15); stomach fullness (3.1); loss of appetite (2.5); upper abdominal discomfort (2.9); bloating (2.9); heartburn when lying down (2.35); regurgitation or reflux when lying down (3.05); lower abdominal pain (1.7); feeling of discomfort in your chest during the day (2.05); bitter, acid or sour taste in your mouth (2.55); lower abdominal discomfort (1.7); feeling of discomfort in your chest at night (1.6); retching (3.05); stomach or belly visibly larger (3.1); vomiting (3.25); not able to finish a normal sized meal (2.55) and feeling excessively full after meals (2.7).

The obsessive compulsive disorder group showed a moderate association with the possibility of immediate vomiting and the group's item mean scores were as follow: heartburn (2.7); regurgitation or reflux (3.3); nausea (3.5); upper abdominal pain (2.6); stomach fullness (2.95); loss of appetite (2.45); upper abdominal discomfort (2.6); bloating (3.0); heartburn when lying down (2.6); regurgitation or reflux when lying down (2.95); lower abdominal pain (2.4); feeling of discomfort in your chest during the day (2.25); bitter, acid or sour taste in your mouth (2.85); lower abdominal discomfort (2.0); feeling of discomfort in your chest at night (2.1); retching (3.35); stomach or belly visibly larger (2.55); vomiting (3.45); not able to finish a normal sized meal (2.4) and feeling excessively full after meals (2.9).

The following section will highlight the highest group's mean score on each item presented and assessed by the PAGI-SYM (2004). On the item heartburn the obsessive compulsive disorder

group scored higher (2.7) in comparison to the emetophobia disorder group (2.6). The emetophobia disorder group scored the highest on the regurgitation or reflux item (3.7); on nausea (4.75) and upper abdominal pain (3.2). The panic disorder with agoraphobia scored the highest on stomach fullness (3.1). The emetophobia disorder group scored the highest on a loss of appetite (2.75) and upper abdominal discomfort (3.3). The obsessive compulsive disorder group scored the highest on bloating (3.0). The emetophobia disorder group scored the highest on heartburn when lying down (3.15); regurgitation or reflux when lying down (3.8) and lower abdominal pain (2.9). The obsessive compulsive disorder group scored the highest on feeling of discomfort in your chest during the day (2.25) and on a bitter, acid or sour taste in your mouth (2.85). The emetophobia disorder group scored the highest on lower abdominal discomfort (2.8); feeling of discomfort in chest at night (2.5) and on retching (4.75). The panic disorder with agoraphobia group scored the highest on stomach or belly visible larger (3.1). The emetophobia disorder group scored the highest on the last three items of vomiting (4.7); not able to finish a normal sized meal (2.7) and feeling excessively full after meals (3.4).

The following section highlights the highest respondent mean score for each item which are presented and assessed by the PAGI-SYM (2004). Respondent one (4.0); respondent two (3.55); respondent three (3.85); respondent four (4.75) and respondent five (4.2) in the emetophobia disorder group scored higher on the PAGI-SYM (2004) in comparison to the first, second, third, fourth and fifth respondent in the panic disorder with agoraphobia group and in the obsessive compulsive disorder group. Respondent six (3.2) in the panic disorder with agoraphobia group; respondent seven (3.45) and respondent eight (3.5) in the emetophobia disorder group scored the highest on the PAGI-SYM (2004). Respondent nine (2.65) and respondent ten (3.35) from the panic disorder with agoraphobia group scored the highest on the PAGI-SYM (2004).

Respondent eleven (2.75) and respondent twelve (2.95) from the obsessive compulsive disorder group scored the highest on the PAGI-SYM (2004). Respondent thirteen (3.25) and respondent fourteen (3.55) from the emetophobia disorder group scored the highest on the PAGI-SYM (2004). Thereafter, respondent fifteen (2.75) from the obsessive compulsive disorder group scored the highest on the PAGI-SYM (2004). The remaining four respondents; respondent sixteen (3.25); respondent seventeen (3.25); respondent eighteen (2.7); respondent nineteen (2.9) and respondent twenty (2.9) from the emetophobia disorder group scored the highest on the PAGI-SYM (2004).

The emetophobia disorder group respondents displayed item mean scores portraying an over ninety-five percent (95%) association between their experiences of the symptoms of nausea (4.75) and retching (4.75) with the possibility of immediate vomiting to occur. More than two thirds (2/3) reported regurgitation or reflex (3.7); upper abdominal discomfort (3.3); heartburn when lying down (3.15); regurgitation or reflux when lying down (3.8) and feeling excessively full after meals (3.4) as the main reasons for possible vomiting. The experience of upper abdominal pain (3.2) and stomach fullness (3.0) conveyed scores displaying a moderate association with possible vomiting.

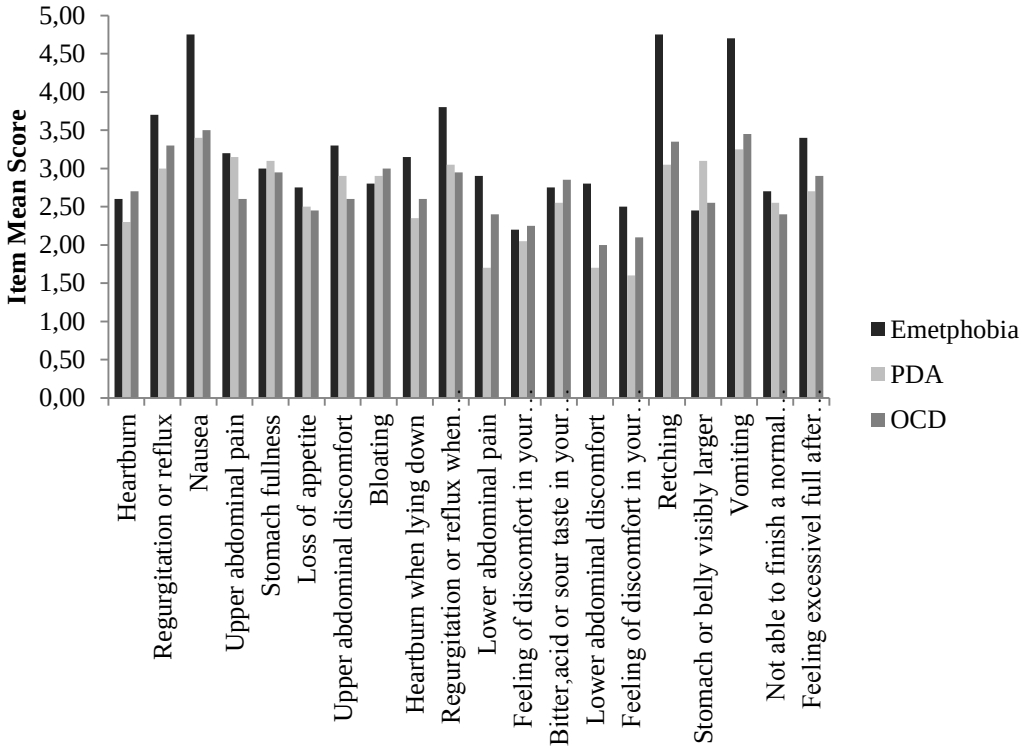
The panic disorder with agoraphobia group displayed a high association with vomiting in their item mean scores on the following symptoms; nausea (3.4); vomiting (3.25) and upper abdominal pain (3.15). The item mean score for stomach fullness (3.1); stomach visibly larger (3.1) and regurgitation or reflux when lying down (3.05) displayed a moderate association with the possibility of immediate vomiting.

The obsessive compulsive disorder group respondents showed high associations between the items mean scores of nausea (3.5); vomiting (3.45) and retching (3.35). The item mean scores of regurgitation or reflux (3.3) and bloating (3.0) displayed a moderate association between these items and possible vomiting.

If one considers the total item and the total respondent scores along with the item mean scores and the respondent mean scores it is possible to observe that the emetophobia disorder group repeatedly scored higher on the majority of the items assessing gastrointestinal symptoms in comparison to the panic disorder with agoraphobia group and the obsessive compulsive disorder group.

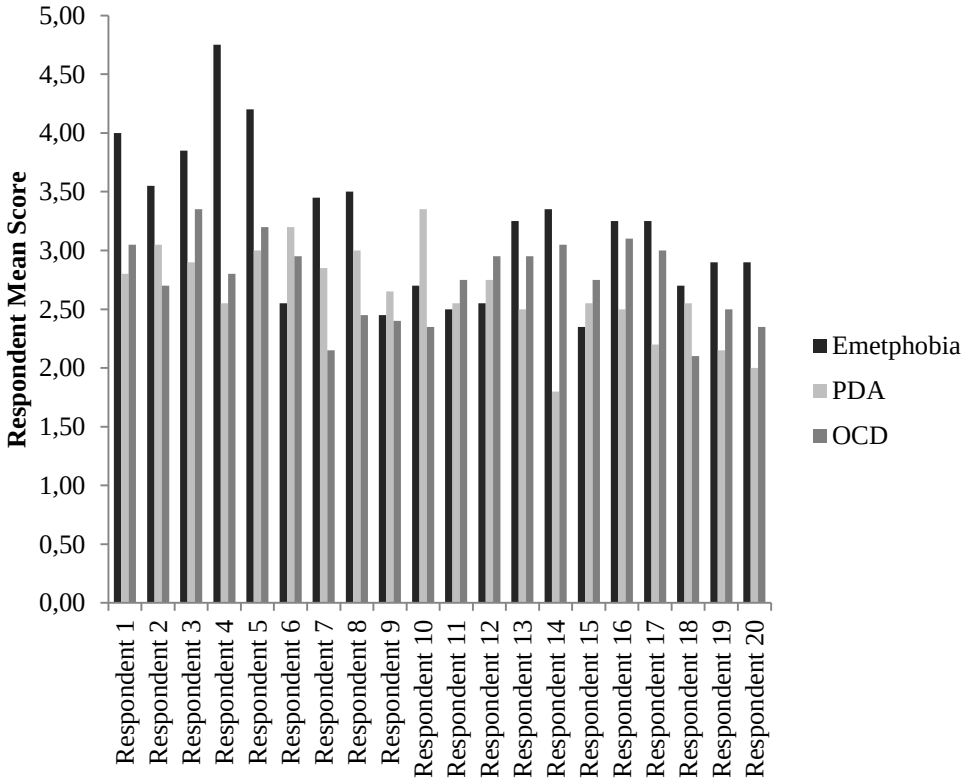
A histogram (graph 5.3 and graph 5.4) displaying the mean scores of each item and for each respondent allows for a comparison to be made between the mean item scores and the mean respondent scores from the emetophobia disorder group, the panic disorder with agoraphobia group and the obsessive compulsive disorder group. The graphs are numbered graph 5.3 (page 135) and graph 5.4 (page 136) below.

ITEM MEAN SCORES ON THE PAGI-SYM (2004).



Graph 5.3 Item mean scores on the PAGI-SYM (2004).

RESPONDENT'S MEAN SCORES ON THE PAGI-SYM (2004).



Graph 5.4 Respondent's mean scores on the PAGI-SYM (2004).

After the three (3) groups' item mean- and respondent mean scores were compared on the histogram. The data suggests that the majority of the emetophobia disorder group did associate their experience of gastrointestinal symptoms with the possibility of immediate vomiting, and this is evident in the mean average scores (item and respondent) which are displayed above the panic disorder with agoraphobia group and above the obsessive compulsive disorder group. The panic disorder with agoraphobia group respondents' item mean score and respondent mean score portray a moderate association between gastrointestinal symptoms and the possibility of vomiting as did the obsessive compulsive disorder group. In the emetophobia disorder group

special relevance or an association was made to the following symptoms: vomiting (4.7) and nausea (4.75).

An ANOVA was used to assess all twenty (20) of the symptom items of the PAGI-SYM (2004). The data set forth by the ANOVA had to be less than 0.05 for the difference which existed between the three groups on a specific item to be regarded as statistically significant. The data set forth by the ANOVA may be located below in table 5.7.

Table 5.7 A Single Analysis of Variance for the PAGI-SYM (2004).

PAGI-SYM-Items	Comparison of Scores	*P*-Value (<0.05)
Heartburn	Between groups	0.473
Regurgitation	Between groups	0.092
Nausea	Between groups	0.000
Upper abdomen pain	Between groups	0.201
Stomach fullness	Between groups	0.908
Loss of appetite	Between groups	0.665
Upper abdominal	Between groups	0.086
Bloating	Between groups	0.885
Heartburn (down)	Between groups	0.106
Regurgitation (down)	Between groups	0.072
Lower abdomen pain	Between groups	0.002
Feeling chest (d)	Between groups	0.830
Bitter taste	Between groups	0.675
Lower abdominal	Between groups	0.005
Feeling chest (n)	Between groups	0.032
Retching	Between groups	0.000
Stomach larger	Between groups	0.183
Vomiting	Between groups	0.001
Not finish meal	Between groups	0.671
Excessively full	Between groups	0.118

The findings on the ANOVA were as follows: heartburn (0.473); regurgitation or reflux (0.092); nausea (0.000); upper abdominal pain (0.201); stomach fullness (0.908); loss of appetite (0.665); upper abdominal discomfort (0.086); bloating (0.885); heartburn when lying down (0.106); regurgitation or reflux when lying down (0.072); lower abdominal pain (0.002); feeling of

discomfort in your chest during the day (0.830); bitter, acid or sour taste in your mouth (0.675); lower abdominal discomfort (0.005); feeling of discomfort in your chest at night (0.032); retching (0.000); stomach or belly visibly larger (0.183); vomiting (0.001); not able to finish a normal sized meal (0.671) and feeling excessively full after meals (0.118) between the three groups.

The results in table 5.7 (page 137) calculated by the ANOVA shows that the symptom items of nausea (0.000); lower abdominal pain (0.002); lower abdominal discomfort (0.005); feeling of discomfort in your chest (sleep) (0.032); retching (0.000) and vomiting shows a great difference between the three groups and the difference is indeed large enough to be regarded as statistically significant due to the fact that the score set forth are less than 0.05.

5.3.3 The Self-Developed Questionnaire

The respondents were assessed on a self-report assessment instrument that recorded the subjective responses from the respondents on their experience of the symptoms which they associated with emetophobia disorder and their opinion of their personal experience of suffering from emetophobia disorder. The questions were related to the respondents' stomach rumbling, their avoidance of spicy foods, belching, birth control, contamination, internal cues, personal health, general issues, gastro, physical sensations, main sources of anxiety, co-occurring disorders, visits to the general practitioner, subjective anxiety in comparison to their friends and the respondents' subjective thoughts on vomiting. The findings set forth information which was answered from a personal perspective, related to a personal experience and a subjective interpretation. The data are thus rich and meaningful.

The ‘co-occurring disorders’ of the emetophobia group were (n = 0); the panic disorder with agoraphobia group showed a high prevalence of generalised anxiety disorder (n = 9) and the obsessive compulsive disorder respondents group had a higher comorbidity with depression (n = 7). The emetophobia disorder group displayed a great fear of medication (n = 14) score and the panic disorder with agoraphobia group displayed a low rating (n = 4). The obsessive compulsive disorder group displayed an above average rating (n = 11). Furthermore, nine (9) of the twenty (20) respondents from the emetophobia disorder respondents reported ‘having gastro’ in the last six (6) months and in two (2) of these cases the emetophobia disorder respondents reported that vomiting occurred. In the panic disorder with agoraphobia group seven (7) respondents reported having gastro in the last six (6) months and in four (4) cases vomiting occurred. The obsessive compulsive disorder group reported that five (5) had gastro in the last six (6) months and in two (2) of these cases vomiting occurred. The emetophobia disorder respondents associated spicy foods (n = 14); their stomach rumbling (n = 13) and burping (n = 17) with a very severe possibility of vomiting. The panic disorder with agoraphobia group associated nausea (n = 14) and feeling lightheaded (n = 11) with a severe possibility of vomiting. The obsessive compulsive disorder group associated ingesting old food (n = 14) and food which has passed it expiration date (n = 14) with a severe possibility of vomiting. In all three (3) the subgroups the majority of the respondents avoided medication (n = 21); burping or belching (n = 17) and bending forward (n = 15) as these items were associated with a severe to a very severe possibility of vomiting. Likewise the majority of the respondents were attentive to any possible contamination (n = 27) whatsoever. The respondents were also wary of migraines (n = 13) and motion sickness (n = 16) as these may possibly result in vomiting.

This section provides the subjective feedback from data which was recorded by the open-ended questions. The main finding on the 'external situations associated with possible vomiting' for the emetophobia disorder respondents were hospitals (n = 10) (cancer patients; doctor's appointments and possible contact with ill patients); bars (n = 15) (people getting intoxicated) and seafood restaurants (n = 14); flying (n = 7); events involving infants and children (n = 9) (amusement parks, rides and babysitting); cruises (n = 1); being around pregnant women (n = 4); emergency rooms (n = 7) or doctors rooms (n = 5); dentists (n = 9) (gagging either themselves or another person in the room); elevators (n = 3) (possibility of getting stuck and someone else vomits in the elevator). Along with: taking a car trip (n = 3); watching movies (n = 1) (dark, enclosed places); intense exercise groups (n = 4); volunteering at shelters (n = 2); concerts (n = 3) (people drinking and portable washrooms and people do not flush) and public washrooms (n = 5) were associated with vomiting. The panic disorder with agoraphobia respondents and the obsessive compulsive disorder respondents did not associate as many external places or situations with vomiting except for bars (n = 14); infants (n = 11) and unhygienic restrooms (n = 14).

The main association of 'internal cues' for the emetophobia disorder respondents was the experience of gastrointestinal symptoms (n = 20), whereas, the main association for twain panic disorder with agoraphobia and obsessive compulsive disorder respondents were the experience of nausea (n = 23). The emetophobia disorder group further specified that the following internal cues are associated with the possibility of vomiting: a rapid heartbeat (n = 11); their stomachs not feeling well (n = 16); belching (n = 16); difficulty breathing (n = 11); diarrhoea (n = 7) and motion sickness (n = 7). The health concerns that the majority of the emetophobia disorder group had with vomiting was the possibility of dying (n = 15) and the majority of the panic

disorder with agoraphobia group was concerned about the possibility of having a panic attack (n = 14) and dying due to the experience of this panic attack. The majority of the respondents in the obsessive compulsive group were concerned about the possibility of contamination (n = 14) and the after-effect of the contamination being possible illness (n = 7).

The 'methods employed' by the respondents with emetophobia disorder to control their vomiting were taking pepto bismol (n = 9); drinking gingerale (n = 2); ingesting stress relief drops (n = 5); sucking on candy (n = 10); taking deep breaths (n = 3) and praying (n = 2). Other methods included getting a lot of fresh air (n = 13); listening to tranquil music (n = 7) and making use of relaxation techniques (n = 6). The panic disorder with agoraphobia group specified that vomiting might assist in calming them down (n = 4) and the respondents with obsessive compulsive disorder avoided any areas (n = 7) which they associated with the possibility of contamination.

The majority of the emetophobia disorder group's 'subjective thoughts on vomiting' were as follow: it is disgusting (n = 11); people think it is funny (especially guys) (n = 3); people do not understand their fear nor do they understand that it is a real disorder (n = 4); they loathed movies in which people vomited (n = 3); they disliked going to buffets (n = 3) where children overeat (n = 1) and their parents do not tell them to stop and they vomit and they loathed amusement parks and the rides (n = 5) where people may vomit. Other methods employed by the respondents with emetophobia disorder to reduce their fear of vomiting include: running away immediately (n = 6); stopping the car getting out and getting some fresh air (n = 3); using stress relief drops (n = 5); listening to music in order to block out noise (n = 1); placing nose plugs in their nose in order not to smell anything (n = 2); counting and removing themselves from a number of situations (n = 11).

The emetophobia group furthermore expressed the ‘ways in which they thought vomiting being unrealistic’ by thinking that: vomit is just mixed up food (n = 1); vomit will not hurt them (n = 1); they might feel better if they do vomit (n = 1); they may not be able to assist someone due to their fear of vomiting (n = 2); vomiting is a way for your body to protect itself it is good physiologically; they avoid the idea of having kids or getting pregnant (n = 7) due to their fear of vomiting and not knowing how they would clean it up; they avoid people they know whom have vomited (n = 3); they have no sympathy (n = 2) for people who are vomiting; if someone whom are vomiting asks for their help they run away (n = 1) and when someone in their household wants to vomit they ask them to vomit outside (n = 1).

The emetophobia disorder group respondents similarly expressed the ‘ways in which they think their fear of vomiting being realistic’ as: they think that vomit seems to follow them (n = 3); they see it in movies everywhere (n = 3); when they fly and someone vomits it ruins their trip (n = 1); vomiting should not exist and there should be other ways to deal with the fluids and the solids in our bowels (n = 1); vomiting is the most disgusting thing (n = 4); vomiting isolates people (n = 1); everyone dislikes the smell of vomit (n = 2) and it is a disgusting bodily reaction (n = 2).

The emetophobia respondents reported their ‘main fear associated with vomiting’ was dying (n = 15) and the panic disorder with agoraphobia reported their main fear associated with vomiting was an inability to breathe (n = 14). The main fear for the obsessive compulsive disorder group was being dirty or becoming dirty (n = 11).

Additional open-ended questions set forth by the self-developed questionnaire will follow. The ‘reasons for visiting a general practitioner’ showed that the respondents with emetophobia disorder expressed that they do not like to visit a general practitioner due to the smell (n = 5) and

they loathed the procedure of inspecting one's throat (n = 3) (with a wooden or a metal mechanism). This procedure was a stressor and a great source of anxiety and fear. Therefore, respondents deliberately refused to have their throats inspected as this might possibly make them gag which will remind them of becoming nauseous, of vomiting or may cause them to vomit. The panic disorder with agoraphobia group visited a general practitioner in order to assess if all their bodily functions (n = 3) were normal such as their heart rate (n = 5); their breathing (n = 3) and their bodily functions (n = 1). The obsessive compulsive disorder group visited the general practitioner for a routine check-up (n = 4). This group were possibly more inclined to ask questions about their health in general and the best methods to prevent illnesses and infections.

The main 'source of anxiety' for the respondents with emetophobia disorder was the possibility of vomiting (n = 17) and the main source of anxiety for the respondents with panic disorder with agoraphobia was the fear of having a panic attack (n = 16). The main sources of anxiety for the obsessive compulsive disorder group was becoming dirty or contaminated (n = 9) and losing control (n = 4). The main aspect the emetophobia disorder respondents 'wished to exercise control over' was their bowels (gastrointestinal symptoms) (n = 15) and the panic disorder with agoraphobia respondents 'wished to exercise control over' their heart rate (n = 14) and their breathing (n = 9). The main aspect the obsessive compulsive disorder respondents 'wished to exercise control over' were their hygiene (n = 11) and the actions (n = 2) in order to maintain their personal hygiene. The 'experience of physical sensations' was associated with gastrointestinal symptoms (n = 14) by the emetophobia disorder respondents and the panic disorder with agoraphobia respondents' group associated physical sensations with their heart rate (n = 12) and with their breathing (n = 7). The obsessive compulsive disorder group associated physical sensations with the possibility of a headache occurring (n = 2).

The ‘methods implemented to combat vomiting’ by the emetophobia disorder respondents was not ingesting anything in the form of solid food (n = 7); consuming breath mints (n = 5) and brushing their teeth constantly (n = 1). The panic disorder with agoraphobia respondents avoided the bathroom or toilet (n = 4) as they associated this place with vomiting. The obsessive compulsive disorder group avoided ingesting any seafood or dairy products (n = 6).

The findings from the self-report assessment instrument’s yes and no questions will be discussed in the following section. The self-developed questionnaire showed that 35% (n = 7) of the emetophobia disorder respondents were ‘on birth control due to their fear of morning sickness, fear of labour, not wanting to have children and it not being the right time to have children’ and the remaining 65% (n = 13) of the emetophobia respondents were not on birth control. On ‘the need to control their environment’ 80% (n = 16) of the emetophobia disorder group specified that they needed to be in control of their environment while the remaining 20% (n = 4) specified they did not. On ‘the need to feel in control’, it showed that 85% (n = 17) needed to feel in control while the remaining 15% (n = 3) felt they did not. The ‘being more anxious than their friends’ item found that 65% (n = 13) specified that they were more anxious than their friends while the remaining 35% (n = 7) specified that they were not. On the item ‘felt that their stomach started feeling strange when they began to get anxious’ found that 100% (n = 20) specified that their stomachs did start to feel strange when they became anxious. The ‘think of their gut when they become anxious’ item found that 85% (n = 17) specified that they did while the remaining 15% (n = 3) specified that they did not. The ‘placing more focus on their gut when they become anxious’ item, found that 85% (n = 17) specified that they did whereas the remaining 15% (n = 3) did not. The ‘associate a noise coming from their stomach with possible vomiting’ item showed that 35% (n = 7) did associate a noisy stomach with the possibility of vomiting while the

remaining 65% (n = 13) did not. The last item: 'thought that vomiting was unacceptable' showed that 60% (n = 12) agreed that vomiting is unacceptable while 40% (n = 8) disagreed.

The panic disorder with agoraphobia group showed that 55% (n = 11) were 'on birth control due to their fear of morning sickness, fear of labour, not wanting to have children and it not being the right time to have children', and the remaining 45% (n = 9) of the panic disorder with agoraphobia respondents were not on birth control. On 'the need to control their environment' item 80% (n = 16) of the panic disorder with agoraphobia group specified that they needed to be in control of their environment while the remaining 20% (n = 4) specified that they did not. The 'need to feel in control' item showed that 75% (n = 15) needed to feel in control while the remaining 25% (n = 5) felt they did not. The 'being more anxious than their friends' item found that 90% (n = 18) specified that they were more anxious than their friends while the remaining 10% (n = 2) specified that they were not. On the item 'felt that their stomach started feeling strange when they started getting anxious' 100% (n = 20) specified that their stomachs did start to feel strange when they became anxious. The 'think of their gut when they become anxious' item found that 95% (n = 19) specified that they did while the remaining 5% (n = 1) specified that they did not. The next item assessed whether they place more focus on their gut when they become anxious and 95% (n = 19) specified that they did whereas the remaining 5% (n = 1) did not. To 'associate a noise coming from their stomach with possible vomiting' item showed that 85% (n = 17) did associate a noisy stomach with the possibility of vomiting while the remaining 15% (n = 3) did not. The last item 'thought that vomiting was unacceptable' showed that 40% (n = 8) agreed that vomiting is unacceptable while the remaining 60% (n = 12) disagreed.

In the data gathered from the obsessive compulsive disorder group 60% (n = 12) of the respondents were 'on birth control due to their fear of morning sickness, fear of labour, not

wanting to have children and it not being the right time to have children', and the remaining 40% (n = 8) from the obsessive compulsive disorder respondents were not on birth control. On 'the need to control their environment' 65% (n = 13) of the obsessive compulsive disorder group specified that they needed to be in control of their environment while the remaining 35% (n = 7) specified that they did not have to be in control of their environment. The 'need to feel in control' item found that 70% (n = 14) needed to feel in control while the remaining 30% (n = 6) felt they did not. The 'being more anxious than their friends' item showed that 85% (n = 17) specified that they were more anxious than their friends while the remaining 15% (n = 3) specified that they were not. The item 'felt that their stomach started feeling strange when they started getting anxious' found that 100% (n = 20) specified that their stomachs did start to feel strange when they became anxious. To 'think of their gut when they become anxious' found that 95% (n = 19) specified that they did while the remaining 5% (n = 1) specified that they did not. To 'placing more focus on their gut when they become anxious' showed that 95% (n = 19) agreed that they did while the remaining 5% (n = 1) did not. To 'associate a noisy stomach with the possibility of vomiting' item found that 85% (n = 17) made the association while the remaining 15% (n = 3) did not. The last item: 'thought that vomiting was unacceptable' found that 35% (n = 7) agreed while vomiting was considered as acceptable by the remaining 65% (n = 13).

5.4 Summary

The respondents were asked to rate their subjective experience of gastrointestinal symptoms on assessment instruments along with the relation of these symptoms with the possibility of immediate vomiting. The first two assessment instruments: the GIS (2005) and the PAGI-SYM

(2004) are existing medical assessment instruments which was utilised to measure the symptom severity of the respondents' gastrointestinal symptoms. Therefore, should they experience a gastrointestinal symptom such as bloating they should rate on a scale from one (1) to five (5) how great the possibility of the occurrence of immediate vomiting were after they experience that symptom. The symptoms was marked on a likert scale with one (1 = being no possibility), two (2 = being a mild possibility), three (3 = being a moderate possibility), four (4 = being a severe possibility) and five (5 = being a very severe possibility).

The observed data in the scores of the respondents in the group diagnosed with emetophobia disorder was consistently higher on the GIS (2005) and on the PAGI-SYM (2004). The main findings showed that the emetophobia disorder group made special relevance or an association was made to the following symptoms: regurgitation or reflux, nausea, stomach fullness, heartburn when lying down, regurgitation or reflux when lying down, vomiting and feeling excessively full after meals. The one way ANOVA confirmed the aforementioned and showed the scores which differed significantly between the groups.

The third assessment instrument is the self-developed questionnaire. Boschen (2007) formulated seven components for emetophobia disorder, the seven components were as follows: a general anxiety vulnerability (an inherited vulnerability to anxiety and related disorders), a somatisation vulnerability (a tendency to misinterpret internal gastrointestinal distress as indicators of immediate vomiting), catastrophic misappraisal (a tendency for attention to be drawn towards the occurrence of gastrointestinal cues), vomit attributions (cognitions and beliefs about the meaning and the unacceptability of vomiting), nausea avoidance (negatively reinforced avoidance behaviour through reduced arousal or nausea) and selective confirmation (failure to obtain disconfirming evidence for vomit expectancies). The researcher used the components and the

data which was set forth to compile questions to assess the subjective experience and elicit subjective feedback from the respondents on possible aspects related to emetophobia disorder. The researcher was similarly guided by the questions from the assessement instruments in the publications of Adam et al. (2005) and Rentz et al. (2004). This self-developed questionnaire specifically requested the respondent to rate the applicability of each question. The questions are yes and no questions, fixed choice questions and open-ended questions and the respondents had to communicate or rate their subjective experience on the questions which are set forth. The subjective feedback on the self-developed questionnaire's yes and no questions and the open-ended questions was narrative and meaningful. The results obtained showed that the emetophobia respondents contributed the experience of gastrointestinal symptoms to immediate vomiting and this contribution may be associated with specific situations and are triggered by external and internal stimuli. It is deduced from the data which were collected that individuals with emetophobia disorder are more likely to associate the experience of gastrointestinal symptoms with a very severe possibility of immediate vomiting.

In conclusion, the principle results was summarised in the aforementioned chapter and the results showed that the emetophobia disorder group scored the highest on the majority of the items assessed by the collective assessment instruments after the comparisons of the data were made between the findings from the three (3) groups. In the following chapter a discussion of the current research, future recommendations and the conclusions from the current research will be predicated.

CHAPTER 6

DISCUSSION AND CONCLUSION

6.1 Introduction

This chapter outlines a discussion of emetophobia disorder; highlights the success of previous publications and the results thereof; elaborates on future research and propose possible recommendations for future researchers delving to assess emetophobia disorder. The sampling procedure; the sample size; uncontrolled error variables; shortcomings in the measurement instruments; the sources and the procedures which may have diminished the trustworthiness of the results will be presented and in the latter part of this chapter a discussion of the conclusions will be provided.

6.2 Discussion

Emetophobia or vomit phobia is a specific phobia, it most often develops in childhood and is most prevalent in females (Davidson et al., 2008; Lipsitz et al., 2001). Individuals with emetophobia disorder are extremely aware of their somatic cues, specifically, their gastrointestinal symptoms (Boschen, 2007). Such individuals tend to constantly assess these symptoms and they tend to associate the experience of normal gastrointestinal symptoms, such as nausea, with the possibility of immediate vomiting. They experience anxiety and fear when they think of themselves vomiting, when they come into contact with vomit or when they are exposed to situations which involve vomit. Therefore, they consequently avoid situations which may

result in the exposure to vomit and they may actively attempt to avoid possible triggers which may cause them to experience nausea or which may create the possibility for vomiting (Veale & Lambrou, 2006).

Boschen (2007) provided the foundation for the current research as the authors developed the cognitive behavioural model of emetophobia to assist in the re-conceptualisation and in the treatment of emetophobia disorder. The model proposes that individuals with emetophobia might have an inherited psychological vulnerability and an additional somatisation vulnerability. The model states that emetophobia disorder consists of three phases namely; the predisposing factors, the acute phase and the maintenance phase and there are certain triggers involved in the activation of emetophobia related symptoms. These triggers include normal gastrointestinal cues; vomit related thoughts and vomit-linked situations. The predisposing factors which are associated with emetophobia disorder are a high negative affectivity, trait anxiety, neuroticism and a biological predisposition to the somatisation of anxiety. The acute phase is the second phase and this phase is maintained by interpreting interoceptive cues as an indication of immediate vomiting. This interpretation allows for an increase in anxiety or arousal for the individual with emetophobia disorder. The arousal unfortunately induces the individual to experience gastrointestinal symptoms. The last phase of the cognitive behavioural model of emetophobia (2007) is the maintenance phase. The maintenance phase is characterised by a hypersensitivity to interoceptive cues. The individual consequently develops an attentional bias to focus on interoceptive cues, explicitly, their gastrointestinal symptoms.

Therefore when an individual with emetophobia disorder experiences normal gastrointestinal symptoms they experience worry or concern about possible vomiting. This anticipation influences their daily lives and their everyday activities. They are consequently unable to

function normally and experience every moment in life. These individuals sustain this maintenance phase by avoiding real or imaginative nauseants. Nauseants may be described as the stimuli or the situations which creates nausea and the individual does not allow themselves to experience certain stimuli and certain situations with which they associate vomiting. They are unable to form a novel association to replace the encoded negative association and they do not grasp that the corresponding stimuli or an equivalent situation may possibly be associated with a new experience. This novel association may then be repeated in order to eliminate the negative association they have. The individual will therefore fail to gather disconfirming evidence and they are unable to break the negative repetitive cycle which maintain their disorder.

Previous research studies which presented with successful results were research endeavours that utilised the eye movement desensitisation and reprocessing (EMDR) approach and interoceptive and situational exposure (de Jongh, 2012; Hunter & Anthony, 2009). These methods of cognitive behavioural therapy proved to be highly successful as both of the respondents participating in the study was rehabilitated. Alternative research which is related to emetophobia disorder was the validation study which developed the specific phobia of vomiting inventory (SPOVI, 2013). The SPOVI (2013) is an inventory which was compiled and created by Veale et al. (2013) with the aim of assisting in the attainment of information which is related to emetophobia disorder by specifically exploring the cognitive processing of individuals and the avoidance behaviours which are characteristically associated with this disorder. This inventory is a novel assessment instrument and is in great need of additional validation.

Van Overveld et al. (2008) assessed disgust sensitivity and disgust propensity. The emetophobia disorder respondents displayed higher levels of disgust sensitivity. Thus, individuals with emetophobia may associate disgust with a factor related to their initial experience or memory of

their phobia of vomiting. In the study by Davidson et al. (2008) the authors attempted to assess whether individuals with emetophobia disorder would display a higher internal locus of control. The emetophobia disorder respondents displayed a higher internal locus of control to health and to general issues. These respondents held a belief that they were able to control their gastrointestinal symptoms in order to prevent vomiting.

The current research assessed females' subjective perception and experience of gastrointestinal symptoms. The results of the three (3) subgroups (emetophobia disorder, panic disorder with agoraphobia and obsessive compulsive disorder) were compared after the assessment instruments assessed the somatisation tendency as was specified by Boschen (2007). The assessment instruments' results displayed a heightened association between the experience of certain gastrointestinal symptoms and the possibility of vomiting to occur in the respondents which presented with emetophobia disorder. The self-developed questionnaire which was compiled by the researcher provided valuable insight on the subjective experience of emetophobia disorder. The questions were compiled in such a way as to capture the respondents' subjective feelings and their thoughts on vomiting. A magnitude of factors related to vomiting and factors which directly or indirectly influence their lives and has an after effect on their quality of life was assessed. The assessment instrument provided mainly open-ended questions and forced choice questions. The assessment instruments may be located in Appendix I (page 172); Appendix II (page 176) and Appendix III (page 182).

Veale and Lambrou (2006) conducted an exploratory study related to numerous aspects which pertain to emetophobia disorder and the maintenance thereof. This study provided valuable insight into the disorder of emetophobia due to the fact that the information which was collected was the personal experience of the respondents. The current research included a self-developed

measure which had a similar aim. The format of the questions were open-ended and in a multiple choice format. The respondents' feedback allowed the researcher to gain valuable insight into the respondents' subjective experience of their disorder and additional information on a number of aspects and features related to their disorder. Information which was gained on were related to the respondents' willingness to have children, internal cues related to vomiting, external cues related to vomiting, health concerns, general issues related to vomiting, main sources of fear, physical sensations, the main sources of their anxiety, ingesting medication, subjective thoughts on vomiting and the whether their fear is realistic or unrealistic. This self-developed questionnaire was incorporated with the objective of gathering information and future researchers might be able to use this information and create unobjectionable treatment strategies.

Hunter and Anthony (2009) provided information on the cognitive behavioural treatment of emetophobia. This study incorporated interoceptive and situational exposure in order to effectively treat the symptoms maintaining emetophobia disorder. Therefore, exposure based therapies are exceedingly successful as the respondents are coerced to re-experience their most fearful memories, vomit experiences and the situations which they have associated with vomiting. The exposure assists individuals to re-live their life debilitating fears and gradually they realise that their fears are misleading and erroneous.

The study by Lipsitz et al. (2001) provided preliminary information on which many researchers based their studies. The authors assessed emetophobia disorder; the symptoms; the triggers; the duration and the persistence of emetophobia disorder; the treatment response and the impairment in its entirety. Lipsitz et al. (2001) used the internet to attain their information and provided a new means for many researchers to gather information in a time and in a cost effective manner.

6.3 Recommendations

In this section future research recommendations are considered and discussed. The current dissertation presented a research study of respondents which presented with emetophobia disorder, with panic disorder with agoraphobia and with obsessive compulsive disorder. The respondents were assessed on assessment instruments which recorded their subjective responses and these were related to the experience of gastrointestinal symptoms and the possible association of these symptoms' experience with immediate vomiting.

It was indicated by Boschen's (2007) cognitive behavioural model of emetophobia that individuals with emetophobia disorder tend to be highly focused on and aware of their gastrointestinal symptoms. They are constantly assessing these symptoms and they are vigilant about numerous aspects which are related to their gastrointestinal symptoms. Thus, the aspects which are related to their association of gastrointestinal symptoms might be assessed for additional empirical validation. Boschen (2007) specifically insisted that these symptoms have to be empirically assessed and the findings or the data should display an elevated awareness of these symptoms by individuals with emetophobia disorder for the cognitive behavioural model of emetophobia to be deemed valid.

The gastrointestinal symptoms which are proposed to be experienced by individuals with emetophobia disorder were the main motivation for conducting the current research. The current research study assessed the experience of gastrointestinal symptoms which are associated with the possibility of immediate vomiting and proposed that a higher score would transpire from the individuals with emetophobia disorder and further assessed this aspect. The data suggested by

Boschen's (2007) theory on a heightened focus and a constant subjective assessment on the status of their gastrointestinal symptoms to be present was set forth in the findings from the current research study. Thus, future treatment research should alternatively focus on treating symptoms, cognitions and triggers. These studies should attempt to alter the avoidance and the safety seeking behaviour which are associated with and related to the experience of gastrointestinal symptoms of the respondents after they were assessed on the self-report instruments which are presented and which were utilised in the current research. The aforementioned might be successful if the respondents whom displayed a particularly high rating in their subjective responses of their association between gastrointestinal symptoms and the possibility of vomiting were identified prior to treatment.

Another recommendation for future research may be to combine Boschen's (2007) cognitive behavioural model of emetophobia, the SPOVI (2013) and one of the methods (the EMDR approach or cognitive behavioural therapy) implemented by de Jongh (2012) or Kobori (2011). These studies exposed the respondents to fearful stimuli and implemented cognitive restructuring to assist in the treatment of emetophobia disorder. A combination of the aforementioned methods will be highly beneficial as each of these methods had successfully assisted in treating the respondents. Unfortunately, both of the aforementioned studies were a single-subject design or a single case study; therefore, the results are valid for a single individual. However, the methods assisted in developing and embedding permanent coping mechanisms within the respondents which provides the opportunity for repetition by future treatment strategies.

The result of this current research study is in line with the findings of Lipsitz et al. (2001) this study found a high score in the respondents' experience of somatisation symptoms. The study by Lipsitz et al. (2001) found that forty-four percent (44%) of their sample delayed becoming

pregnant due to having emetophobia and some endured pregnancy with great distress. Future research may explore this aspect. In the current research the sample was restricted to females and they were assessed within the appropriate time frame in which the need for pregnancy may arise. Therefore, future researchers in South Africa, the United States of America or Great Britain scheduling to assess the pregnancy aspect related to emetophobia may readily be able to utilise the findings set forth by this current research.

The pregnancy aspect may additionally be assessed by investigating the exact aspects the individuals presenting with emetophobia disorder fear. In the current research the researcher held gender constant and restricted the age range; this restriction may provide the opportunity for future researchers to readily utilise the findings set forth by the current research. These aspects may be investigated together with the methods which the respondents incorporate in order to avoid becoming pregnant and whether these methods include medication. If some of the respondents are in fact drinking medication then the researcher should further attempt to assess whether they fear that these medication might make them nauseas or not and whether they may fear drinking these medications.

Another pursuit to gather data pertaining to emetophobia may be achieved by constructing a study which includes males. The findings which were derived from the data collected may then possibly set forth information conveying an underlying characteristic which makes emetophobia disorder more prevalent in females. Furthermore, this study may attempt to incorporate the SPOVI (2013) and the data set forth will contribute to the validation of this novel assessment instrument as the SPOVI (2013) is a recently developed measure with the objective to assist in assessing the cognitive processes and the behaviours which are related to the maintenance of emetophobia disorder (Veale et al., 2013).

All of the emetophobia disorder respondents which form part of future endeavours may be additionally assessed for anorexia nervosa according to the DSM-V (2013) by a psychiatrist considering that cases of vomit phobia have been described and were misdiagnosed as anorexia nervosa as was noted in the research by Manassis and Kalman (1990, cited in Veale & Lambrou, 2006; American Psychiatric Association, 2013; Veale et al., 2013).

Another aspect future researchers may seek to assess was proposed in the publication by van Overveld et al. (2008). The authors proposed that future researchers should build a more comprehensive framework of the predisposing, precipitating and perpetuating factors implicated in emetophobia disorder. The predisposing factors perchance may include genes and environmental stressors; the precipitating factors may include any somatisation symptom experienced by that particular individual and the perpetuating factors may include a previously encoded association (a memory) related to vomiting or to their formed beliefs about the dangers involved in vomiting. In the study by van Overveld et al. (2008) it was proposed that future research may explore the association between the fear of vomiting and control. In the current research a model (figure 2.1 on page 36) was proposed which summarised the possible factors involved between subjective control and the fear of vomiting for future researchers to peruse.

An attempt to change the original thought patterns which generates and maintains emetophobia disorder may be achieved by designing a study which incorporates methods assisting in the cognitive restructuring of the individuals' thought patterns. The individuals' brain may be restructured by forming alternate pathways in the brain to re-associate external and internal stimuli with a non-emetophobia related stimulus. Another aspect for future research to enterprise may be to develop a novel study and additionally incorporate the instruments of the current research (related to gastrointestinal symptoms). However, this study might devote a more in

depth focus on these symptoms. This may be accomplished by tailoring the second phase of assessment of a particular gastrointestinal symptom according to each and every single individual's "trigger symptom".

The current research is similar to the research by Hunter and Anthony (2009) which assessed interoceptive exposure. However; in the current research study the individuals were not requested to mimic or to re-create an interoceptive symptom related to the possibility of vomiting. They were asked to assess their interoceptive symptoms and they had to provide feedback on a scale ranging from one (1) to five (5) which were calculated and the data provided an empirical score which had to be statistically analysed. The feedback was related to the experience of a symptom and how likely the experience of that symptom would make the respondents believe that they will vomit. The respondents did not have to acquire new coping mechanisms and they did not have to re-structure their thinking. The respondents primarily had to provide feedback and communicate their subjective experience based on a series of gastrointestinal symptoms which were assessed by the assessment instruments. Future research may seek to determine the usefulness of situational and interoceptive exposure (Hunter & Anthony, 2009). Additionally, future treatment research may additionally seek to replicate the study of Hunter and Anthony (2009) by incorporating a larger sample. In a similar study by Kobori (2011) the female was exposed to situations which simulated the symptoms she experienced in order to eliminate her safety seeking behaviour and the triggers which the respondent associated with her phobia of vomiting. The treatment was successful due to the fact that the female experienced her feared situations (internally and externally) and she consequently learnt that nothing bad would happen.

A future endeavour for researchers may be to combine methods of de Jongh (2012) and Kobori (2011). In the study by de Jongh (2012), a female with emetophobia disorder was successfully

treated in a single case study by administrating the eye movement desensitisation and reprocessing (EMDR) approach in a series of treatment sessions and the therapist included a three (3) year follow-up. The two method model was implemented to access crucial memories related to the origins and to the maintenance of emetophobia disorder symptoms. Similarly, Kobori (2011) successfully treated a female with emetophobia; he implemented cognitive behavioural therapy and a self-report instrument. He further included treatment strategies proposed by cognitive models of emetophobia (Boschen, 2007; Veale et al., 2013). The design which was implemented was a single case report study and therapy involved ninety (90) minutes of individual therapy twice a week and follow-up sessions were offered one (1), three (3) and six (6) months after the individual therapy was concluded. The case formulation was collaboratively developed and based on the female's past experiences such as typical triggers which led to bodily changes and stomach discomfort. The behavioural experiments were purposefully employed to break down and to terminate the safety seeking behaviour and the associated triggers of these behaviours. The objective was to avoid the repetition of the process which maintained the re-occurrence of emetophobia disorder. Therefore, if a research study combines the eye movement desensitisation and reprocessing approach and cognitive behavioural therapy (terminating safety seeking behaviour and eliminating triggers) the outcome may be successful and permanently effective.

Lipsitz et al. (2001) utilised the internet as a means to conduct their research. Jerome, DeLeon, James, Folen, Earles and Gedney (2000) and Stones and Perry (1997) deemed the internet a valuable resource for conducting research into psychiatric disorders (cited in Lipsitz et al., 2001). Furthermore, Lipsitz et al. (2001) concluded that the internet was a valuable source from which to acquire information, especially information implicated in emetophobia disorder and

information related to the contexts in which emetophobia disorder is triggered and maintained. An additional rationale for conducting research by means of the internet is based on the fact that emetophobia disorder is a particularly rare and an extremely under researched phobia. Therefore, future researchers may utilise the internet as a possible expedient to gather data for their research. The present findings further illustrated that a somatisation tendency was present owing to the findings of the exploratory self-report assessment instrument and the research was similarly conducted on the internet.

Future treatment strategies may be selected on the basis of case formulations and such strategies may incorporate the techniques proposed by Boschen's (2007) cognitive behavioural model of emetophobia. These prospective studies should further attempt to include an adequate amount of respondents in their sample. Another option for future researchers to peruse is a novel study with an aim to incorporate the SPOVI (2013) combined with alternative assessment instruments which they intend to incorporate in their research study. The SPOVI (2013) is a novel assessment inventory for emetophobia disorder and is in great need of empirical success in the replication of the initial validation results.

The sampling strategy procedure which was utilised in the current research was non-probability quota sampling. The aforementioned sampling strategy may have contributed positively to the results owing to the fact that the target population was reached. The sample size was specified in the publication by Boschen (2007). Boschen (2007) proposed that a large sample required to be assessed for farther valid results; however, the current research assessed sixty (60) respondents and twenty (20) of these respondents presented with emetophobia disorder. The results which were presented might have had higher validity if the sample size were larger since the validity of the results might have been motivated if all of the respondents displayed a very high association

in their subjective rating score regarding the possibility of vomiting attributed to their experience of gastrointestinal symptoms. The uncontrolled error variables which may have been presented might have been the weather. Warm weather might have compelled the respondents to experience nausea and cold weather might have compelled the respondents not to experience nausea. An alternative uncontrolled error variable might have been the respondents' mood and their anxiety levels on the day of assessment. A greater stress level and a depressed mood may have influenced a few of the respondents to provide feedback which displayed a higher association between their symptoms and the possibility of nausea.

A shortcoming of the assessment instruments might possibly have occurred if the respondents misunderstood the question and they were ineffectual to provide an accurate answer. The assessment instruments were not developed for a South African population; for an American population or for a British population however these instruments were previously utilised in a medical setting. Furthermore, the self-developed questionnaire which was compiled by the researcher was not standardised for a South African sample; for an American sample or for a British sample and the questions may not have been accurately defined and tailored to the language use of that specific country. The language uses and the terminology for the three countries may vary accordingly and the terms which were used are understood subjectively according to the learnt language within that country.

Alternative sources and the procedures which may have diminished the trustworthiness of the results may have been external influences such as researcher bias, statistical miscalculations and subjective mistakes. Another factor which may have influenced the results was that the respondents weren't assessed on instruments which provide biological responses, thus, the respondents may have deemphasised their responses or provided the researcher with inaccurate

results. Lastly, appropriate treatment strategies for individuals with emetophobia disorder are limited and there is a classification of multitudinous disorders in the field of psychology. Consequently an abundance of research is crucial to develop an assessment instrument which is valid, reliable and feasible to utilise in a universal sample and provide empirical data for the entire population of the sample from which the data were acquired.

6.4 Conclusions

The cognitive behavioural model of emetophobia as developed by Boschen (2007) served as the foundation for the current research. The maintenance of emetophobia disorder occurs in three phases: the predisposing factors, the acute phase and the maintenance phase. The somatisation vulnerability which forms part of the predisposing factors is related to gastrointestinal symptoms and the model theorises that there is a significant relevance related to the gastrointestinal symptoms experienced by individuals with emetophobia disorder and in the maintenance thereof. Thus, the gastrointestinal symptoms experienced by individuals are especially implicated in the validity of the cognitive behavioural model of emetophobia which are conceptualised as a somatisation vulnerability. The somatisation tendency was assessed in the current research and the data yielded valid and partially significant results.

The current study employed somatisation self-report instruments in order to assess the respondents' subjective rating of their experience of gastrointestinal symptoms and when they experience these symptoms how strongly or how poorly do they associate the experience of these symptoms with the possible occurrence of immediate vomiting to occur. These gastrointestinal symptoms were rated on a likert scale ranging from one (1) to five (5) (1 = no possibility, 2 =

mild possibility, 3 = moderate possibility, 4 = severe possibility and 5 = very severe possibility). There were three (3) self-report assessment instruments namely the GIS (2005); the PAGI-SYM (2004) and the self-developed questionnaire. These instruments were collectively utilised to assess the respondents' subjective experiences of gastrointestinal symptoms and the association of these symptoms with the possibility of vomiting.

The GIS (2005) is one of the self-report assessment instruments and was very reliable in this research study because the main focus was placed on assessing gastrointestinal symptoms. The instrument presented an item mean score and a respondent mean score of various gastrointestinal symptoms experienced by the respondents. The assessment instrument is valid as was confirmed in the results set forth by the study of Adam et al. (2005). The scores rendered in the current research might be regarded as an accurate representation of the data which was derived from this assessment instruments. Thus, the GIS (2005) specifically assessed gastrointestinal symptoms and this was the main aim. The findings set forth showed that the emetophobia group rendered a higher score in comparison to the panic disorder with agoraphobia group and the obsessive compulsive disorder group.

The PAGI-SYM (2004) was reliable in this research and the primary focus was similarly directed at the assessment of gastrointestinal symptoms and this instrument presented a score of the gastrointestinal symptoms experienced by the respondents which formed part of the current research. The scores were presented as an item mean score and as a respondent mean score. The assessment instrument was valid in the results set forth by the study of Rentz et al. (2004). Therefore, the scores which were presented in the current research may possibly be regarded as an accurate representation of the data which was derived from the assessment instruments.

The current research hypothesised that the respondents with emetophobia disorder would display a higher gastrointestinal symptom score in comparison to the two (2) baseline control groups. The hypothesis was verified by answering the research question. The statistical analysis of the data presented by the results verified the findings and the emetophobia disorder group had in fact displayed a higher group mean average. These findings may possibly be utilised to empirically verify the cognitive behavioural model of emetophobia by Boschen (2007).

This contribution may be valuable and beneficial as the specific phobia of vomiting is an extremely under researched disorder and there exists a need for an appropriate treatment strategy with an endorsed success rate (Hunter & Anthony, 2009; Lipsitz et al., 2001). Therefore, this model may be implemented and utilised in a clinical setting for further validation and included as a novel guideline in treatment trials to assist in treating individuals with emetophobia disorder. Furthermore, the current research collectively included a self-developed questionnaire. The questionnaire was developed on the whole for exploratory purposes and the researcher aimed to gather information related to the respondents' personal and subjective experience of symptoms; events; subjective thoughts and personal associations (both internal and external) comprised in the maintenance and in the perpetuation of emetophobia disorder.

These findings allowed the researcher to assume that gastrointestinal symptoms are in point of fact a function of emetophobia disorder and that these symptoms are linked to the maintenance thereof. A general statement might be cognised and we may assume that gastrointestinal symptoms are a fundamental part of emetophobia disorder. The researcher hypothesised that the emetophobia disorder respondents would display a higher gastrointestinal symptom awareness and a heightened awareness on the occurrence of and in the assessment of their gastrointestinal symptoms. The researcher further hypothesised that the respondents would attribute their

experience of these symptoms to the possibility of immediate vomiting. The questionnaires which was utilised for assessment were designed in such a way as to enable the researcher to conclude that the higher the respondents' mean scores on the questions rendered, the higher their subjective association are of the gastrointestinal symptoms they experience. These symptoms accompany their fear of vomiting and attest the possible occurrence of immediate vomiting.

In conclusion, the study which was conducted proved that the respondents with emetophobia disorder do in fact regard their experience of gastrointestinal symptoms as an indication of vomiting to occur. The aforementioned was empirically observable and a high score was rendered in the data which derived from the assessment instruments. The self-developed questionnaire provided in-depth information on the subjective feedback from the respondents. The recommendations which were proposed in previous publications' information on emetophobia disorder were discussed. A noteworthy recommendation is linked to control and to the respondents' personal motivation and determination to locate this control. I would personally communicate to individuals that the control they have to take and maintain derives from a personal decision. They have to realise that they have the ability to take control. Their thoughts, their actions, their environment and their interactions determine their sense of control. It is the individual's personal decision to ensure that they avoid any negative or influential factors which may result in them losing the control they have. The majority of disorders derive from a depressed mood or anxiety and in the majority of cases develops in childhood or they are a consequence of a traumatic experience or occurred and surfaced due to a number of traumatic experiences (Gravetter & Forzano, 2006). Therefore, a multidisciplinary approach with a combination of treatment methods may be regarded as a viable means to ensure the effective

treatment of emetophobia disorder and may contribute to the prolonged success of such a treatment approach.

The methods employed by and implemented in cognitive behavioural therapy are prodigiously beneficial in creating similar situations and bodily reactions which are a direct consequence of the symptoms associated with their disorder, specifically, interoceptive and situational exposure. Situational exposure is when a respondent is exposed to a situation that triggers them to experience the urge to vomit. Interoceptive exposure is when a respondent is purposefully exposed to interoceptive cues which may make them believe that they will vomit such as nausea, stomach fullness or upper abdominal pain. For these methods to be successful the respondent has to be willing to step out of their personal comfort zone (safety zone), they have to have a support system, they have to employ their personal safety behaviours and their control mechanisms and they must know it is a long term goal they should forever enforce and a daily goal they have to have and consistently pursue on an interminable basis.

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APPENDICES

APPENDIX I

THE GIS (Gastrointestinal Symptom Score)

This questionnaire questions you about the severity of the symptoms you may have which are related to the association of that symptom with the possibility of the occurrence of immediate vomiting. There are no right or wrong answers. Please answer each question as accurately as possible.

For each symptom please circle the number which best describes how severe the association between that symptom and the possibility of vomiting are. If you do not associate the symptom with the possibility of immediate vomiting circle 1 = no possibility. If the symptom contains a mild possibility circle 2 = mild possibility. If there is a moderate possibility circle 3 = moderate possibility. If there is a severe possibility circle 4 = severe possibility and if the symptom is associated with a very severe possibility circle 5 = very severe possibility.

Please be sure to answer every question and rate the severity of the following symptoms which you associate with the possibility of immediate vomiting.

1. Nausea: An urgent feeling of the need to vomit, however vomiting does not actually occur.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

2. Vomiting: Vomiting of mucus and gastric contents or strong unproductive retching.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

3. Bloating: Feeling of congestion of food without the relation to prior food intake, which could explain this feeling.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

4. Abdominal Cramps: Spasmodic or colic like stomach pain without specified localisation.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

5. Early Satiety: Feeling that the stomach is overfilled soon after starting to eat, unproportioned to the quantity of food taken, so that the meal cannot be finished.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

6. Acid Eructation or Heartburn: Belching with an acid taste and a burning sensation in the oesophagus.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

7. Sickness: Discomfort combined with the impression for the need to vomit.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

8. Loss of Appetite: Listless for food intake.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

9. Retrosternal Discomfort: Unpleasant feeling behind the sternum, painful or drawing.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

10. Epigastric or Upper Abdominal Pain: Pain localised between the costal arches, below the sternum or pain localised in the upper abdomen.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

Thank you for your participation and valuable input in this research study.

APPENDIX II

THE PAGI-SYM (Patient Assessment of upper Gastrointestinal Symptom Severity Index)

This questionnaire asks you about the severity of the symptoms you may have which are related to an association of that symptom with the possibility of immediate vomiting. There are no right or wrong answers. Please answer each question as accurately as possible.

For each symptom please circle the number which best describes how severe the association between that symptom and the possibility of vomiting are. If you do not associate the symptom with the possibility of immediate vomiting circle 1 = no possibility. If the symptom contains a mild possibility circle 2 = mild possibility. If there is a moderate possibility circle 3 = moderate possibility. If there is a severe possibility circle 4 = severe possibility and if the symptom is associated with a very severe possibility circle 5 = very severe possibility.

Please ensure to answer every question and accurately rate the severity of the following symptoms which you may associate with the possibility of immediate vomiting.

1. Heartburn (burning pain rising in your chest or throat).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

2. Regurgitation or Reflux (fluid or liquid from your stomach coming up into your throat).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

3. Nausea (feeling sick to your stomach as if you were going to vomit or throw up).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

4. Upper Abdominal Pain (above the navel pain).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

5. Stomach Fullness (your stomach feeling full).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

6. Loss of Appetite (not being hungry or experiencing the need to eat or ingest solid food).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

7. Upper Abdominal Discomfort (above the navel discomfort).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

8. Bloating (feeling like you need to loosen your clothes).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

9. Heartburn when Lying Down (burning pain rising in your throat and in your chest when lying down).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

10. Regurgitation or Reflux when Lying Down (fluid or liquid from your stomach coming up into your throat when lying down).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

11. Lower Abdominal Pain (below the navel pain).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

12. Feeling of Discomfort in your Chest during the day.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

13. Bitter, Acid or Sour Taste in your mouth.

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

14. Lower Abdominal Discomfort (below the navel discomfort).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

15. Feeling of Discomfort Inside your Chest at night (during sleep time).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

16. Retching (heaving as if to vomit, but nothing comes up).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

17. Stomach or Belly Visibly Larger (seeing your stomach as swollen).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

18. Vomiting (gastric contents from the stomach spilling out of the mouth).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

19. Not able to finish a Normal-Sized Meal (unable to eat a normal potion).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

20. Feeling Excessively Full after meals (stomach uncomfortably full).

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

Thank you very much for your participation in the research study.

APPENDIX III

THE SELF-DEVELOPED QUESTIONNAIRE

This questionnaire was developed for exploratory purposes. The questionnaire asks you to rate each statement accordingly. There are no right or wrong answers. Please answer each question as accurately and as honestly as possible.

For each symptom please circle the number which best describes how severe the association between that symptom and the possibility of vomiting are. If you do not associate the symptom with the possibility of immediate vomiting circle 1 = no possibility. If the symptom contains a mild possibility circle 2 = mild possibility. If there is a moderate possibility circle 3 = moderate possibility. If there is a severe possibility circle 4 = severe possibility and if the symptom is associated with a very severe possibility circle 5 = very severe possibility.

Please be sure to answer every question and rate the severity of the following symptoms which you associate with the possibility of immediate vomiting.

1. Does thinking about your stomach make you think immediate nausea will occur?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

2. When you hear your stomach rumbling do you associate this rumbling with immediate vomiting?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

3. Do you tend to avoid spicy foods which may possibly upset your stomach?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

4. Do you associate burping or belching with immediate vomiting?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

5. Do you possibly avoid certain foods due to a fear that your stomach might become noisy?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

6. Are you on birth control?

Yes No

6.1 If yes, please indicate by underlining the main reason for drinking birth control medication:

I fear morning sickness I fear labour It is not the right time I do not want children

7. Are you concerned with the foods you ingest due to possible contamination?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

8. What are some external events or situations which you associate with the possibility of vomiting?

_____

_____

9. What are some internal cues you associate with the possibility of vomiting?

_____

_____

10. What are some of the concerns you have which are related to your health?

_____

_____

11. What are some of the concerns you have which are related to general issues in your life?

_____

_____

12. What are the main reasons why you are afraid of vomiting?

_____

_____

13. How often have you had gastro in the past six months?

_____ time(s).

14. What caused the gastro?

_____

_____

15. In the time of having gastro did vomiting occur?

_____

_____

16. How frequently did vomiting occur?

_____ time(s).

17. Did you make any attempt to control the vomiting?

_____

_____

18. What methods did you employ to control your vomiting?

_____

_____

19. During the time of having gastro what was the possibility of vomiting to occur?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

20. While vomiting what were the main physical sensations you experienced?

_____

_____

21. While vomiting what was the most prominent fear?

_____

_____

22. Do you associate bending forward or activities which involve bending forward with the possibility of vomiting?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

23. Do you constantly have the tendency to feel in control of your body and your environment?

Yes No

24. What is it that you wish to control?

_____

_____

25. Do you constantly have the desire to feel in control?

Yes No

26. What is it that you wish to control?

_____

_____

27. What is the most prominent fear you experience?

_____

_____

28. What is the main source of your anxiety?

_____

_____

29. How many times have you visited your general practitioner in the last six (6) months?

_____

_____

30. What were the main reasons for your visit?

_____

_____

31. Please rate the possibility to which you believe that ingesting medication might lead to vomiting?

|----------1----------2----------3----------4----------5

no possibility mild possibility moderate possibility severe possibility very severe possibility

32. Are you anxious?

Yes No

33. Do you have any co-occurring disorders?

Yes, specify: _____ No

34. Are you more anxious when you compare yourself to some of your friends?

Yes No

35. Does your stomach feel strange when you start getting anxious?

Yes No

36. When you feel anxious about possible vomiting do you immediately think of your gut?

Yes No

37. When you are feeling anxious do you place more focus on your gut?

Yes No

38. When your stomach becomes noisy do you associate this noise with possible vomiting?

Yes No

39. Are you constantly listening and acutely focusing on your stomach for possible noise?

Yes No

40. Do you think vomiting is unacceptable?

Yes No

41. What are your subjective thoughts on vomiting?

_____

_____

42. Which places do you avoid out of fear of coming into contact with any kind of vomit?

_____

_____

43. What are some of the methods you have to diminish your fear of vomit when you are in a situation where you may have to come into contact with vomit?

_____

_____

44. Kindly explain the ways in which you think your fear of vomiting is unrealistic?

_____

_____

45. Kindly explain the ways in which you think your fear of vomiting is realistic?

_____

_____

46. Do you avoid taking car trips due to your fear of possible nausea and consequent vomiting?

_____

_____

Thank you very much for your willingness to access and communicate emotional information in order to fulfil the requirements of participating in the research study. Please inform the researcher or the research assistant should you experience any form of distress. Much obliged for your participation in the current research study.

APPENDIX IV

INFORMATION FORM

Dear Respondent,

thank you for your willingness to participate in this research study. My name is Anuscha Liebenberg and I am currently completing my Master of Arts Degree in Psychology at the University of South Africa. The degree requirements specify that I am obliged to hand in a formal dissertation. The topic I am researching is related to emetophobia. Emetophobia is a psychological disorder and it is classified as an excessive fear of vomiting. This study will utilise three (3) assessment instruments which are presented in the form of questionnaires. I would like to emphasise that your participation is voluntary and you may withdraw from the research study at any time.

As a respondent in this study you will be required to complete a consent form and a battery of assessment instruments which are presented in the form of questionnaires. The time estimate for completion is 20 (twenty) to 30 (thirty) minutes. Your feedback and the results will only be viewed by the researcher, the research assistant, the statistician and my supervisor. Your responses will remain confidential and the mean scores will be reported rather than individual scores in order to make inferences about the topic under investigation.

As part of the study all the respondents have the right to withdraw from the study at any given point without any repercussions. The respondents are encouraged to answer all of the questions as this will aid a magnitude of individuals whom are diagnosed with emetophobia and this will tremendously contribute to the understanding of emetophobia and its related symptoms. The results of this research will be presented in a formal research dissertation. Should you require

any further information regarding this research please do not hesitate to contact me. Should you require additional psychological assistance kindly inform me and I will refer you to the necessary personnel, psychologists or psychiatrists responsible for assisting me with the current research study.

Miss. Anuscha Liebenberg

Mobile: 0749634541

Email: anuschaliebenberg@gmail.com

APPENDIX V

INFORMED CONSENT FORM

The purpose of the study

The purpose of the study is to explore your experience of gastrointestinal symptoms and the possibility of immediate vomiting which may occur with the experience of these symptoms. You will receive a questionnaire with specific symptoms and the symptoms' definitions. You will be requested to rate the intensity of each symptom on a five (5) point scale (1 = no possibility, 2 = mild possibility, 3 = moderate possibility, 4 = severe possibility and 5 = very severe possibility). You should rate the possibility of immediate vomiting associated with the experience of the symptoms which are presented in the questionnaires.

Your participation

Should you decide to participate in this research study, you will be required to sign this consent form. You should only sign this form once all of your questions about the research study have been answered to your satisfaction. You will be required to complete the attached questionnaire. It is additionally required that you are female and between the age of twenty (20) to forty-five (45) years. Your participation in this research study is completely voluntary and you may withdraw from the study at any given time. You need not offer any explanation and you will not suffer any negative consequences associated with your eschewal from the research study. Please note to answer all the questions in the questionnaire.

Anonymity, Confidentiality and Respondents' Rights

You will complete this questionnaire anonymously and without any specific identifying information. Your responses will be treated confidentially. Should you have any questions regarding the research study, you can contact the researcher, Ms. Anuscha Liebenberg (MA Psychology student at Unisa, working under the supervision of Prof. Monika dos Santos), at anuschaliebenberg@gmail.com or alternatively contact the research supervisor; Prof. Monika dos Santos at dsantmml@unisa.ac.za. The researcher retains the right to use and publish non-identifiable data. All the data will be stored in a secured location for a minimum of three years after the completion of the research study. Furthermore, the data will only be accessible to the researcher, the research assistant, the statistician and the research supervisor.

Risks and Benefits

The researcher anticipates that there will be no risks associated with your participation or the experience of any discomfort. There will be no financial benefit available to you for your participation in this research study; however, completing the attached questionnaires to the best of your ability will immensely contribute to the value of this research study. Your individual experiences of these symptoms are valuable. The results from this study might possibly be harnessed in future research endeavours.

Consent

I have read this consent form and I understand what is being requested of me as a respondent in this study. I freely consent to participate and I have been given satisfactory information. All my necessary questions have been answered. I hereby certify that I am female and between the age of twenty (20) and forty-five (45) years. Once I return the completed questionnaire to the researcher, I am consenting to participate in this research study.

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Researcher **Date**